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The McKinley-Darragh-Savage Mines

OF COBALT, LIMITED

COBALT, ONTARIO

General Manager's Report

for the Year

1909

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GENERAL MANAGER'S OFFICE

McKinley-Darragh-Savage Mines of Cobalt, Limited.

Statement of Receipts and Disbursements, Year 1909.

RECEIPTS.

Cash in Banks, Jan. 1, 1909,	$46,419.95	
Received from Sales of Ore,	591,517.08	
Rec'd account fire loss Savage Mine,	750.00	
Rec'd from Sovereign Bank account Stock Overissue,	755.00	

DISBURSEMENTS.

Plant and Operating Expenses, Savage Mine,		$43,992.97
Plant and Operating Expenses, McKinley-Darragh Mine,		224,708.49
General Expenses, Salaries, etc.,		12,185.91
Prospecting,		2,374.27
Insurance,		4,187.49
Taxes and Miscellaneous,		6,813.22
Dividends paid,		224,493.03
Cash in Banks, December 31, 1909,		120,686.65
	$639,442.03	$639,442.03

W. L. THOMPSON, *Treas.*

THE McKINLEY-DARRAGH-SAV

Financial Statemen

ASSETS.

CURRENT ASSETS.		
Cash in Bank and on hand,	$120,759.62	
Ore at Smelters,	106,712.48	
Ore at Mines,	10,558.80	
M'dse, Material and Supplies on hand,	5,702.06	
Coal on hand,	2,900.00	
		$246,632.96
DEFERRED CHARGES TO PROFIT AND LOSS.		
Insurance paid in advance,	1,745.15	
Dept. of Immigration (Ore loaned),	343.03	
		2,088.18
CAPITAL ASSETS		
McKinley-Darragh Mine,	1,333,334.00	
Savage Mine,	672,910.88	
Bennett Mine,	100,000.00	
Plant No. 1,	15,762.74	
Plant No. 2,	107,801.69	
Office Fixtures,	908.82	
Assay Office,	681.10	
		2,231,399.23
		$2,480,120.37

We have examined the books and accounts of the McKinley-Darragh-
and we hereby certify that the Financial Statement above is co

GENERAL MANAGER'S OFFICE

E MINES OF COBALT, Limited,

cember 31, 1909.

LIABILITIES.

CURRENT LIABILITIES,		
Accounts Payable,		$16,901.70
DEFERRED LIABILITES,		
Accrued Wages,	$11,408.71	
Accrued Salaries,	1,529.16	
Dividend No. 6, Payable Jan. 15, '10,	112,384.60	
		125,322.47
CAPITAL LIABILITIES,		
Capital Stock (Authorized),	2,500,000.00	
Less Amount in Treasury,	252,308.00	
		2,247,692.00
Surplus,		90,204.20
		$2,480,120.37

Mines of Cobalt, Limited, for the period Jan. 1st to Dec. 31st, 1909,
repared therefrom.

NEW YORK & BUFFALO AUDIT CO.,
W. SALVIN TAYLOR, Manager.

GENERAL MANAGER'S OFFICE

The McKinley-Darragh-Savage Mines of Cobalt, Limited

Directors

C. A. Masten, President, Toronto, Ont.
Thos. W. Finucane, Vice-President, Rochester
J. R. L. Starr, Secretary, Toronto
W. L. Thompson, Treasurer, Rochester
Joseph S. Hunn, Asst. Treas., Rochester
Hiram W. Sibley, Rochester

AUTHORIZED CAPITAL, $2,500,000
SUBSCRIBED CAPITAL, $2,247,692

Offices

CANADA LIFE BLDG.
TORONTO, ONT.
AND
COBALT, ONTARIO.

COBALT, ONT., Feb. 15th, 1910.

To the Directors—

I beg to submit the following report for the year 1909:

OUNCES OF SILVER PRODUCED.

	1906	1907	1908	1909	TOTAL TO JAN. 1, 1910.
McKinley-Darragh,	42673.07	706543.48	653590.38	1235349.37	2638156.30
Savage,			22654.82	62181.52	84836.34
TOTALS,	42673.07	706543.48	676245.2	1297530.89	2722992.64

OUNCES OF SILVER SHIPPED.

	1906	1907	1908	1909	TOTAL TO JAN. 1, 1910.
McKinley-Darragh,	42673.07	632983.48	701611.2	1265505.37	2642773.12
Savage,			17432.82	59403.52	76836.34
TOTALS,	42673.07	632983.48	719044.02	1324908.89	2719609.46

EXPENDITURES FOR OPERATIONS.*

	INSURANCE, TAXES AND MISCELLANEOUS.	LABOR.	SUPPLIES.	TOTALS.	COST PER OUNCE PRODUCED.
Administration and Management				$32,657.90	$0.0246
Operations, McKinley-Darragh,	$6 777.58	$ 96,322.10	$48,443.20	151,442.88	0.1143
Operations, Savage,	381.10	28,279.55	13,117.44	41,778.09	0.0322
Prospecting,		2,719.24	337.53	3,056.77	0.0024
TOTALS,	7158.68	$127,320.89	$61,898.17	$228,935.64	$0.1735

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*The slight differences in the figures of the Treasurer's report and those given in the General Manager's report are due to the fact that outstanding accounts and pay roll for December, 1908, were paid in 1909, while accounts and pay roll for December, 1909, had not been closed at the end of the fiscal year. Also, in the case of the warehouse stock at Cobalt, there was a small credit balance of $2,918.23 on January 1st, 1909, and a credit of $8,496.76 on January 1st, 1910. The General Manager's report includes only those items directly chargeable to the year 1909.

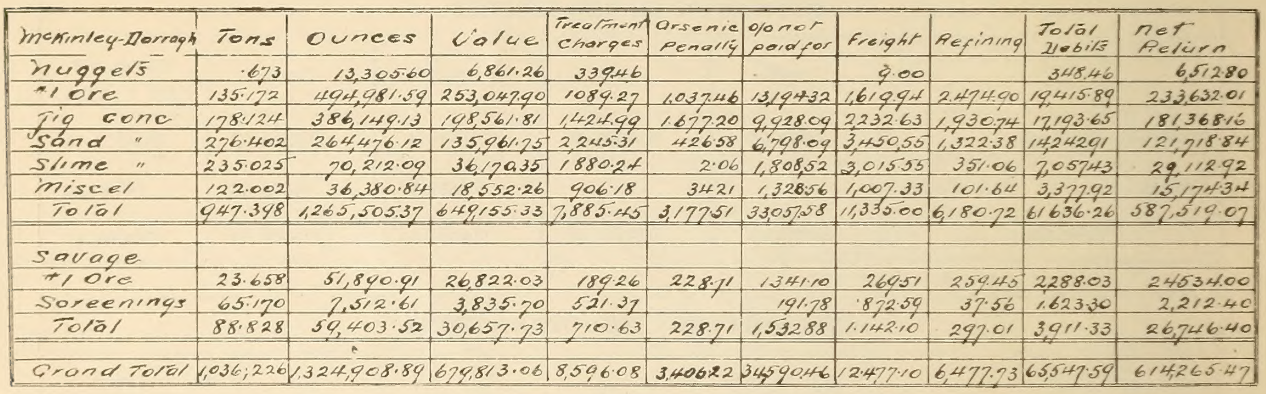
Under "operations" are included all costs for shaft sinking, timbering, cross-cutting, raising and other development work. If these items were charged as development and included under the head of "Plant," our operating costs would be reduced to approximately $185,000.00 and the cost per ounce would be $0.1426.

MARKETING ORE.

Ounces of Silver Shipped, - - - - - - 1,324,908.89

	MARKETING COSTS.	COSTS PER OUNCE.
Consular fees, - - - - - - - - - - - Insurance, - - - - - - - - - - - -	$101.40 328.25	$0.00032
Freight, - - - - - - - - - - -	12477.10	0.00942
Sampling, - - - - - - - - - - -	4440.50	0.00335
Smelter Charges, - - - - - - - - -	53070.50	0.04005
TOTALS, - - - - - - - -	$70417.75	$0.05314

The following table shows the classification of ore shipped, and distribution of smelter charges.



McKinley-Darragh	Tons	Ounces	Value	Treatment Charges	Arsenic Penalty	% not paid for	Freight	Refining	Total Debits	Net Return
Nuggets	·673	13,305·60	6,861·26	339.46			9·00		348.46	6,512·80
#1 Ore	135·172	494,981·59	253,047.90	1089·27	1,037.46	13,19432	1,619.94	2,474.90	19,415·89	233,632·01
Jig conc	178·124	386,149·13	198,561·81	1,424.99	1.677.20	9,928.09	2232·63	1,930.74	17,193·65	181,368·16
Sand "	276·402	264,476·12	135,961·75	2,245·31	426·58	6,798·09	3,450,55	1,322·38	14,24291	121,718·84
Slime "	235·025	70,212·09	36,170.35	1880·24	2·06	1,808,52	3,015·55	351·06	7,05743	29,112·92
Miscel	122·002	36,380·84	18,552·26	906·18	3421	1,328.56	1,007.33	101·64	3,377.92	15,17434
Total	947·398	1,265,505.37	649,155·33	7,885·45	3,177.51	33,057.58	11,335.00	6,180·72	61,636·26	587,519·07
Savage										
#1 Ore	23·658	51,890·91	26,822·03	189·26	228·71	1341·10	269.51	259.45	2288·03	24534.00
Screenings	65·170	7,512·61	3,835·70	521·37		191·78	872·59	37·56	1.623.30	2,212·40
Total	88·828	59,403·52	30,657·73	710·63	228·71	1,53288	1.142·10	297·01	3,911·33	26,746·40
Grand Total	1,036,226	1,324,908·89	679,813·06	8,596·08	3,40622	34,590.46	12477·10	6,477·73	65,547·59	614,265·47

AVERAGE VALUE.

No. 1 Ore, - - - - - - - - - -	3662.44 ozs. per ton.
Jig Concentrates, - - - - - - - - -	2176.04 " " "
Sand " - - - - - - - - -	957.85 " " "
Slime " - - - - - - - - -	294.03 " " "

Gross value of silver shipped, - - - - - - - - - -		$679,813.06
Gross value per ounce, - - - - - - - - - - -		$0.513094
Production cost per ounce, - - - - - - - - -	$0.173199	
Marketing cost per ounce, - - - - - - - - -	0.053149	
Total cost, - - - - - - - - -		$0.226348
Net profit per ounce, - - - - - - - -		$0.286746

Expenditures for Plant Extensions have amounted to:

	LABOR.	SUPPLIES.	TOTALS.
McKinley-Darragh, - - - - - - - - -	$16183.98	$30356.31	$46540.29
Savage, - - - - - - - - - - -	2553.71	2829.87	5383.58
TOTALS, - - - - - - - - -	$18737.69	$33186.18	$51923.87

Further analyses of costs will be found in the following pages, included in the reports on the respective properties.

REDUCTION IN COSTS.

The year 1910 will see our working costs reduced materially. With a cheap source of power available, a larger production of ore from McKinley-Darragh, the Savage emerging from a phase of development to one of steady, profitable production, and a more settled condition of affairs generally, the results are certain to be congratulatory.

ORE RESERVES.

Our ore reserves have been increased by the year's work, and in the following reports you will find them estimated as at January 1st:

McKinley-Darragh, - - - - -	100,000	tons carrying		4975000 ozs.
Savage, - - - - - - -	10,300	"	"	750000 ozs.
Total, - - - - - -	110,300	"	"	5725000 ozs.

PROSPECTING.

During the year our prospectors located a number of claims at Gow Ganda and Shining Tree. We have a controlling interest in eleven claims, upon one of which showings of native silver have been found, and upon several others smaltite and cobalt bloom.

ACCIDENTS.

Two fires occurred during the year, i. e., No. 3 Shaft house at the Savage, and the Hungarian quarters at McKinley-Darragh.

No serious accidents occurred to machinery or plant.

It is with regret that I report three fatalities which have marred the year's work, all on McKinley-Darragh.

On March 17th Robert Johnston, miner, was instantly killed while loading holes preparatory to blasting. The cause of the explosion is unknown as deceased was working alone at the time.

April 26th George Puckett, miner, while operating a drill in a raise, struck the bottom of an old hole containing powder, resulting in an explosion. Death was instantaneous.

December 1st Costea Ruciarz, mucker, while clearing broken rock away from a face after blasting, picked into a stick of powder which exploded with fatal consequences.

Besides the above fatalities there have been a number of minor accidents, which have been catalogued—first, according to causes; second, according to resulting injuries.

NO. OF CASES.	CAUSES OF ACCIDENTS.	RESULTING INJURIES.
7	Self inflicted injuries by tools in hands of men injured.	1st and 2nd, gashed fingers. 3rd, Contusion over eye. 4th, Gashed lip. 5th, Finger amputated. 6th, End of thumb and nail torn off. 7th, Finger nail torn off.
4	Men fell down different workings in mine.	1st, Ear partly torn off and bad scalp wounds. 2nd, Sprained ankle and body bruises. 3rd, Compound fracture of leg and scalp wounds. 4th, Cut head and bruised body.
4	Struck by falling material while working in different shafts.	1st, Bruised side. 2nd, Bruised shoulder. 3rd, Bruised head. 4th, Finger amputated.
4	Setting up machine drills and adjusting same on bars.	1st, Split finger. 2nd, Smashed thumb and finger. 3rd, Thumb amputated. 4th, Smashed finger and nail torn off.
3	Struck by falling pieces of rock in mine.	1st, Gashed hand. 2nd, Gashed thumb. 3rd, Smashed finger.
3	Struck in eyes by flying particles of rock or steel from air drills.	2 cases, Temporary injuries. 1 case, corneal ulceration with probable impairment of sight in one eye.
3	Struck by tools being used by fellow workmen.	1st, Gashed face. 2nd, Gashed knuckles. 3rd, Fractured finger.
2	Struck by handles of windlasses while lowering buckets.	1st, Scalp wound. 2nd, Bruised arm.
2	Injured by moving machinery.	1st, Scalp wound. 2nd, Gash over eye.
2	Ran nails into feet.	Temporary lameness.
2	Blasted, struck by flying pieces of rock.	1st, Fractured bone over eye and bad flesh wounds. 2nd, Small cuts on cornea of eye.
1	Tramming bucket of rock which upset.	Bruised thigh.
1	Tripped on stone.	Sprained ankle.
1	Spark from steel being welded.	Slight burn on cornea of eye.
1	Ignition of grease being melted.	Burned face.
1	Knocked stick of timber over.	Bruised ankle.

SUMMARY OF INJURIES.

Injuries to head and face,	16 cases (including 4 cases of eye injuries).
" " hands,	15 cases (3 cases entailing loss of digits).
" " feet and ankles,	5 cases.
" " body,	4 cases.
" " limbs,	3 cases.

TYPHOID.

Although Cobalt and the camp in general suffered greatly during the Autumn from a severe epidemic of typhoid, we were extremely fortunate in not having a single case develop upon either the McKinley-Darragh or Savage claims.

SMALL POX.

One case of small pox occurred on McKinley-Darragh, having been brought in by an arrival from England. An isolation camp was built under the Medical Health Officer, and the spread of the disease prevented. All costs in connection with the matter were met by us, neither the Town nor Township contributing.

RECOMMENDATION FOR GENERAL STORE.

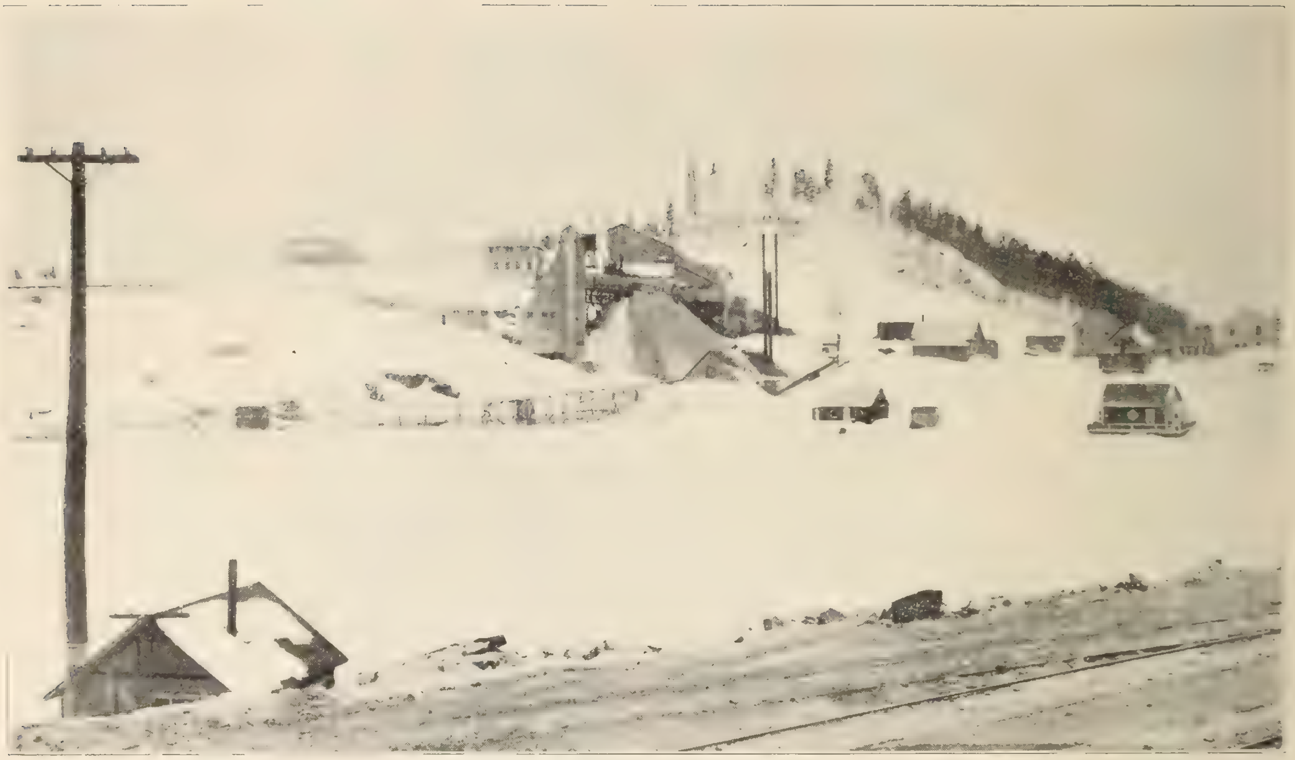
While it has been your desire that we should support local dealers and agents, I do not feel that there is any call for this. We are spending over $200,000.00 per annum in the district, and we enjoy no compensating advantages. Our rights in the matter of roads have been ignored, and while the rest of the camp is served by good roads, we must make a long tedious detour of Cobalt Lake, or else use a rough trail in order to get to town.

Our property is cut off from the town by the T. & N. O. Railway, over which there is no recognized crossing. One of our employees was killed during the year, while driving across the railway, and his family were left without redress, because the crossing was not an official one.

Our employees and their families cannot attend school or church, nor go shopping without trespassing upon the railway at great personal risk.

I have already pointed out the failure of the township to pay for handling the outbreak of small pox.

These instances are mentioned, that you may better understand the position here in Cobalt, and that you may feel disposed to consider favorably the establishment of a general warehouse upon our property. We have excellent railway siding facilities and good locations for a warehouse, cold storage room and coal pocket, such ventures will be profitable to us, not only in the saving effected in the cost of supplies, but also in the rental of store space to other companies.



McKINLEY-DARRAGH MINE

McKINLEY-DARRAGH CLAIM.

EXTENT OF MINING OPERATIONS.

	1906–7.	1908	1909.	TOTAL TO Jan. 1, 1910.
Drifts, - - - - - -	1220 Ft.	2453 Ft.	1704 Ft.	5377 Ft.
Crosscuts, - - - - - -	938 Ft.	1630 Ft.	1471 Ft.	4039 Ft.
Raises, - - - - - -		301 Ft.	415 Ft.	716 Ft.
Winzes, - - - - - -		175 Ft.	81 Ft.	256 Ft.
Shafts, - - - - - -	359 Ft.	99 Ft.	20 Ft.	478 Ft.
	2517 Ft.	4568 Ft.	3391 Ft.	10866 Ft.
Stopes, - - - - - -	770 cubic yards.	948 cubic yards.	2997 cubic yards	4715 cubic yards.
Trenches, - - - - - -	No records kept.		5100 Ft.	Estimated 3 miles.

DISTRIBUTION OF UNDERGROUND WORKINGS.

Levels.	Drifting.	Crosscutting.	Stoping.
60 and 75 Feet.	1234 Feet.	670 Feet.	1740 Tons.
110 Feet.	1030 Feet.	435 Feet.	1020 Tons.
150 Feet.	1806 Feet.	2430 Feet.	6810 Tons.
200 Feet.	903 Feet.	330 Feet.	
250 Feet.		46 Feet.	
No. 7 Vein.	316 Feet,	88 Feet.	1300 Tons.
No. 3 Vein.	88 Feet.	40 Feet.	
	5377 Feet.	4039 Feet.	10870 Tons.

The character of the ground may be somewhat judged from the following notes:

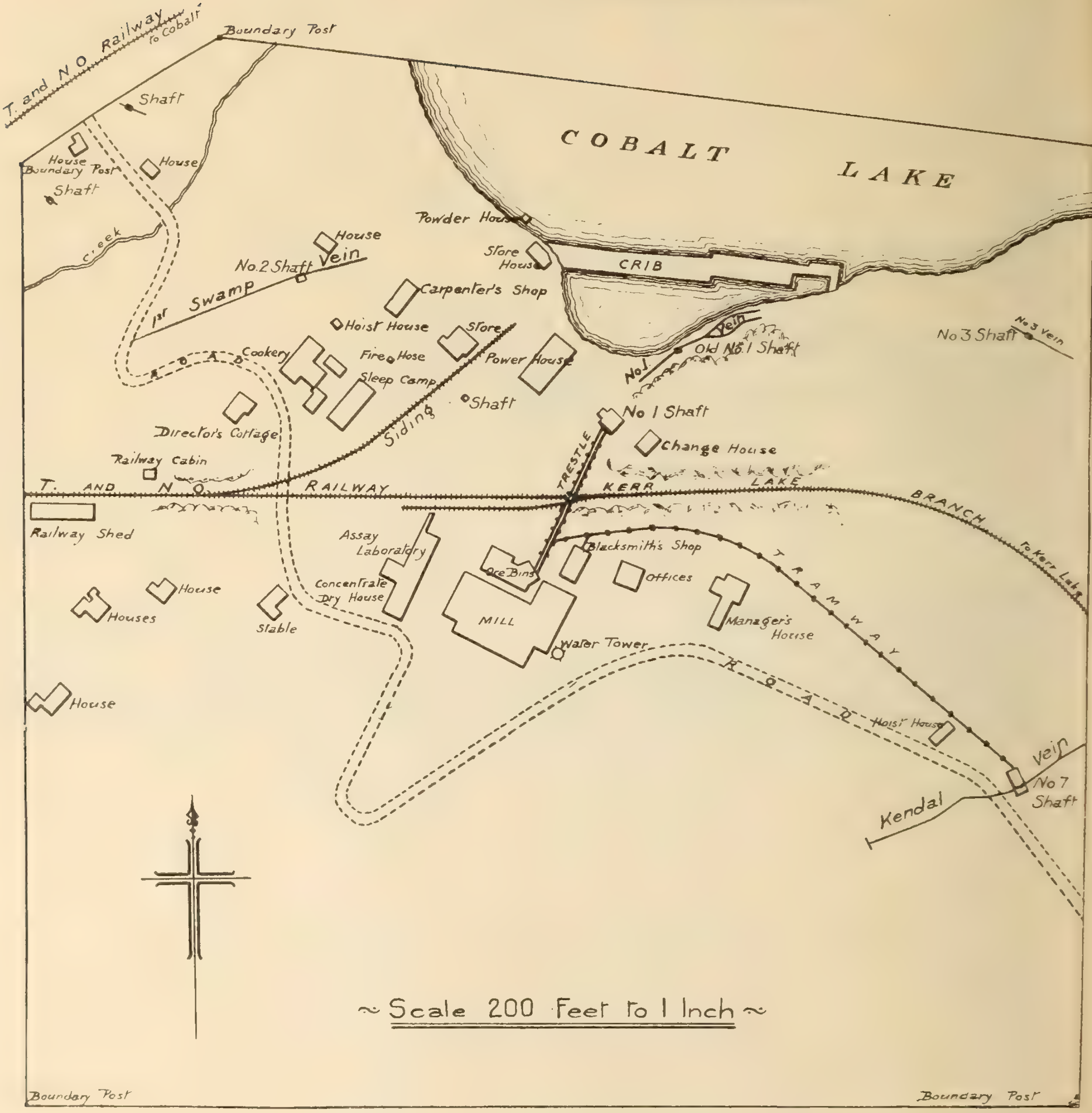
Using a 3 1-8 inch air drill, a man and helper in one shift of nine hours, when working on company account, drifting or crosscutting, will drill from 25 to 30 feet in conglomerate, 30 to 35 feet in lower Huronian measures, and from 35 to 45 feet in the slates under the swamp, all holes approximately 5 feet deep.

The average charge of powder is approximately 2.1 lbs. of 60 per cent. dynamite per hole.

— McKINLEY-DARRACH MINE —

= Cobalt, Ontario, Canada =

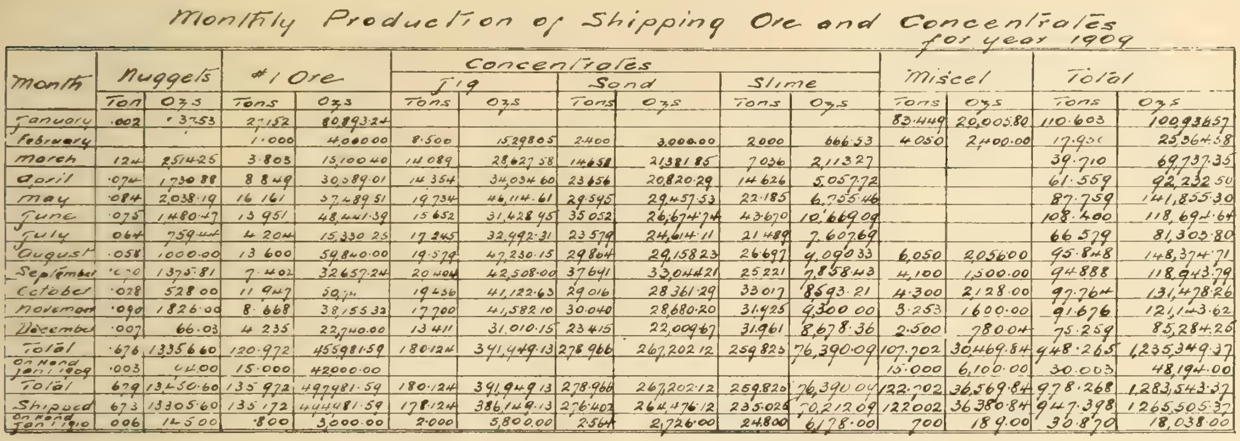
= SURFACE PLAN =



The number of five-foot holes required for breaking a face, 5 ft. 6 in. by 7 ft. varies from 9 to 10 in the Swamp drifts, 10 to 12 in lower Horonian, and 11 to 13 in the tougher conglomerates of the Blind Vein.

With two faces to work in, so that the drill runners do not have to do their own mucking, one drill working 13½ shifts per week, will, in that time, advance from 18 to 20 feet in conglomerate, 22 to 24 feet in lower Huronian, and 25 to 35 feet in slates.

The foregoing figures represent what is considered fairly good work upon the part of our men.



Monthly Production of Shipping Ore and Concentrates for year 1909

Month	Nuggets		#1 Ore		Concentrates						Miscel		Total	
					Jig		Sand		Slime					
	Ton	Ozs	Tons	Ozs	Tons	Ozs	Tons	Ozs	Tons	Ozs	Tons	Ozs	Tons	Ozs
January	·002	·3753	27,152	80,893·24							83·449	20,005·80	110·603	100,936·57
February			1·000	4,000·00	8·500	15,298·05	2·400	3,000·00	2000	666·53	4050	2,400·00	17·951	25,364·58
March	124	2514·25	3·803	15,100·40	14·089	28,627·58	14·658	21,381·85	7036	2,113·27			39·710	69,737·35
April	·074	1730·88	8·849	30,389·01	14·354	34,034·60	23·656	20,820·29	14·626	5,057·72			61·559	92,232·50
May	·084	2,038·19	16·161	37,489·51	19·734	46,114·61	29·545	29,457·53	22·185	6,755·46			87·759	141,855·30
June	·075	1,480·47	13·951	48,441·39	15·652	31,428·95	35·052	26,674·74	43·670	10,669·09			108·400	118,691·64
July	·064	759·44	4·204	15,330·25	17·245	32,992·31	23·579	24,614·11	21·489	7,607·69			66·579	81,303·80
August	·058	1000·00	13·600	59,840·00	19·579	47,230·15	29·864	29,158·23	26·697	9,090·33	6,050	2,056·00	95·848	148,374·71
September	·070	1375·81	7·402	32657·24	20·404	42,508·00	37·641	33,044·21	25·221	7,858·43	4,100	1,500·00	94·888	118,943·79
October	·028	528·00	11·947	50,7[illegible]	19·436	41,122·63	29·016	28,361·29	33·017	8593·21	4·300	2,128·00	97·764	131,478·26
November	·090	1826·00	8·668	38,155·32	17·700	41,582·10	30·040	28,680·20	31·425	9,300·00	3·253	1600·00	91·676	121,143·62
December	·007	66·03	4·235	22,740·00	13·411	31,010·15	23·415	22,009·67	31·961	8,678·36	2·500	780·04	75·259	85,284·26
Total	·676	13356·60	120·972	455981·59	180·124	341,449·13	278·966	267,202·12	259·825	76,390·09	107·702	30469·84	948·265	1,235,349·37
On Hand Jan 1 1909	·003	44·00	15·000	42000·00							15·000	6,100·00	30·003	48,194·00
Total	·679	13,450·60	135·972	497981·59	180·124	391,949·13	278·966	267,202·12	259·825	76,390·09	122·702	36,569·84	978·268	1,283,543·37
Shipped	·673	13305·60	135·172	444481·59	178·124	386,149·13	276·402	264,476·12	235·025	70,212·09	122002	36380·84	947·398	1265,505·37
On Hand Jan 1 1910	·006	145·00	·800	3,000·00	2·000	5,800·00	2·564	2,726·00	24·800	6178·00	700	189·00	30·870	18,038·00

Ore hoisted from mine during year, - - - - - - - -	16824 tons.
Ore milled, - - - - - - - - - - - -	18703 tons.
Ounces of silver produced, - - - - - - - - -	$1,235,349.37.

COSTS OF PRODUCTION AT McKINLEY-DARRAGH.

	TOTAL.	PER TON OF ORE MINED.	PER TON OF ORE MILLED.	PER OUNCE OF SILVER PRODUCED.
Insurance, Taxes and General Charges, - -	$28541.48	$1.6965	$1.5260	$0.0231
Mining, - - - - - - - - - -	85767.08	5.0979	4.5857	0.0694
Milling, - - - - - - - - - -	37134.32	2.2072	1.9854	0.0300
TOTALS, - - - - - - -	$151442.88	$9.0016	$8.0972	$0.1226

During the year approximately 10,000 tons of waste rock have been hoisted from the mine. Including this tonnage with the tonnage of ore, the costs work out:

General charges, - - - - - - - - -	$1.064 per ton of rock.
Mining, - - - - - - - - - -	3.197 " " " "
Assume Milling, - - - - - - - -	1.30 " " " "
	$ 5.561 " " " "

This is indicative of what could be expected if we were to stop all exploratory work and limit our operations to the mining and milling of ore. In fact, were we to persue such a course, it is probable that the total cost of operations could be reduced to $5.25 per ton, for the costs of surface trenching, and other contributing costs could also be eliminated.

The average number of men employed upon operations at the mine, exclusive of construction work, has been 112, classified as follows:

MINE.		SURFACE.		GENERAL.	
Superintendent,	1	Mill Superintendent,	1	Clerk,	1
Shift Bosses,	2	Mill Foremen,	2	Storeman,	1
Drill Runners,	13	Millmen,	13	Sampler,	1
Drill Helpers,	11	Foreman Mechanic,	1	Assayer,	1
Loaders and Trammers,	14	Mechanics,	1	Surveyor,	1
Cage Tenders,	4	Pipe Fitters,	1	Cook,	1
Timbermen,	2	Pipe Helpers,	1	Cook's Helpers,	2
Timber Helpers,	2	Blacksmith,	1	Choremen,	2
Hoistmen,	2	Blacksmith Helper,	1	Watchman,	1
Nippers,	2	Engineers,	4	Teamster,	1
Drill Sharpeners,	1	Firemen,	4	Team. Helper,	1
Helpers,	1	Coal Passer,	1	Prospectors,	2
Powdermen,	1	Foreman Carpenter,	1		
		Carpenters,	3		
		Carpenter's Helpers,	2		
		Surface Laborers,	6		
	56		41		15

The standard rates of wages are:

Surface Laborers,	$2.25	per day.
Drill Runners,	3.25	“
Drill Helpers,	2.75	“
Mine Laborers,	2.50	“
Mill men,	2.25 to 3.25	“
Mechanics,	2.75 to 3.25	“
Mechanic's Helpers,	2.25 to 2.75	“

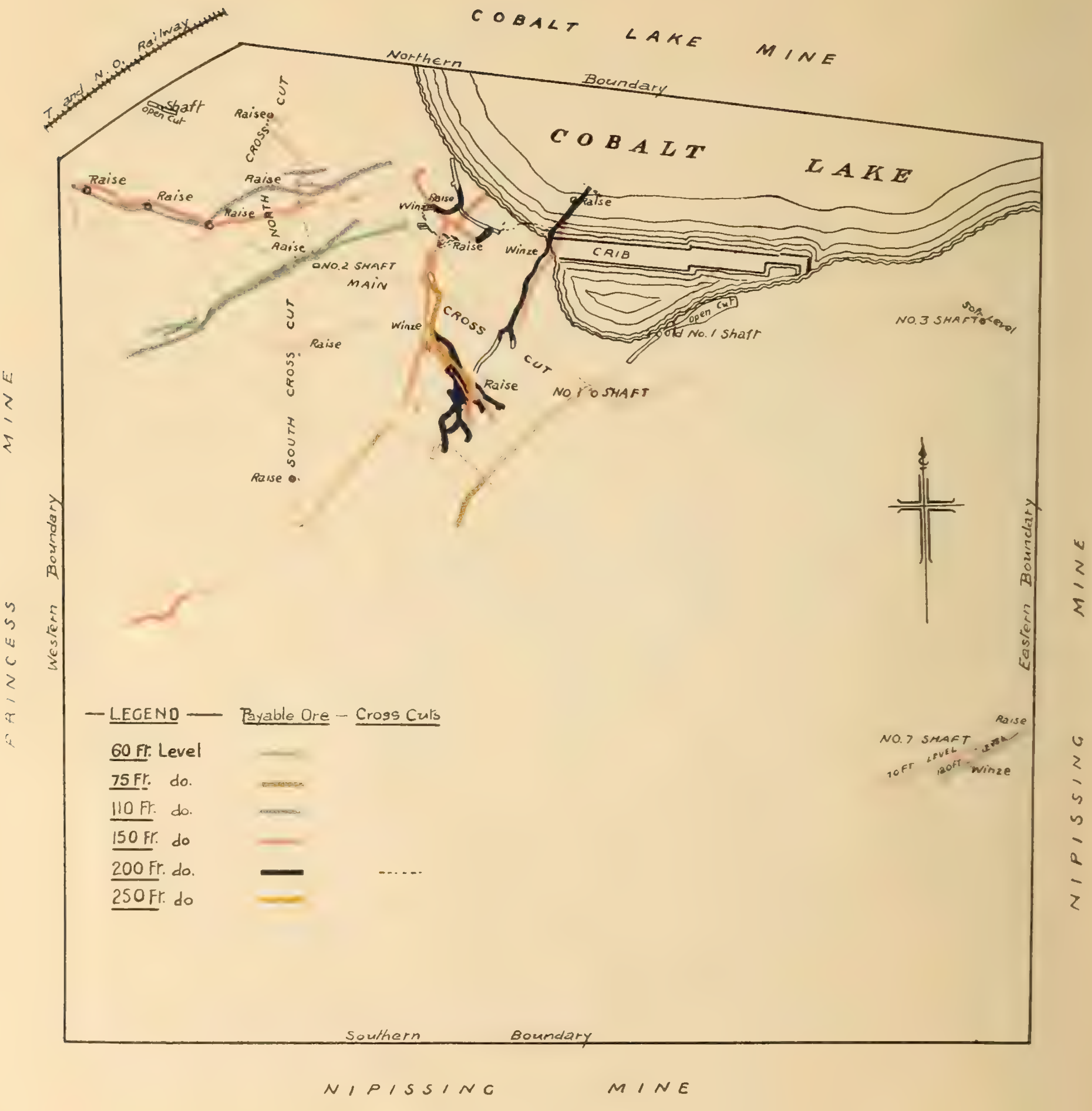
The men are charged 60 cents per day for bed and board.

A day's work consists of 9 hours, in the mine; 9½ hours, on the surface; and 12 hours in the mill.

— McKinley Darragh Mine —

— Cobalt, Ontario, Canada —

— GENERAL PLAN OF WORKINGS —



Classification and Distribution of Supplies

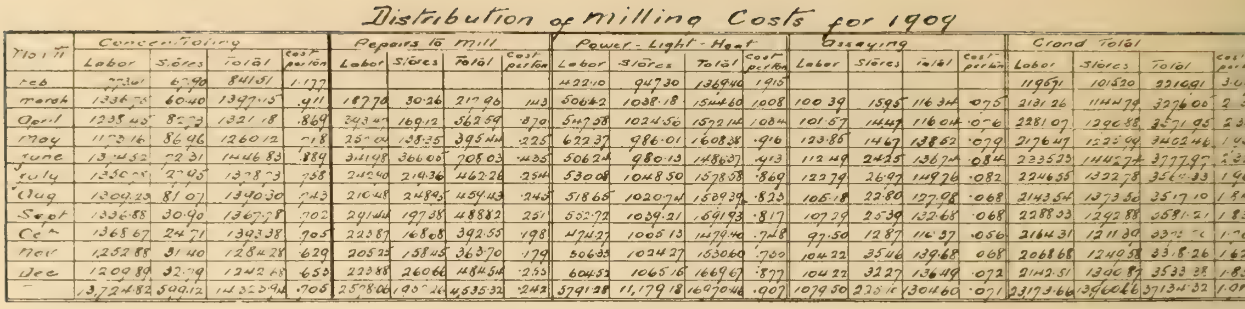
	General, Office, Camp, Boarding House, Shops, Stables, Prospecting, Sampling	Trenching, Sinking, Drifting, Cross Cutting, Raising, Pumping, Hoisting, Tramming, Timbering	Steel Sharpening Drill Repairs	Mine Power Plant Operation and Repairs	Mill Operation and Repairs Bagging and Shipping Ore	Mill Power Plant Operation and Repairs	Construction	Totals
Belting, Packing etc.	6.98	11.46	.13	54.50	245.45	50.49	653.43	1022.93
Camp Supplies	569.12			1.36			172.27	742.75
Candles	4.23	1064.64		.24	14.20	.06		1083.37
Chains, Ropes, etc.		124.89		2.65	27.50		8.19	163.23
Chemicals	232.20			3.06		2.47	1.90	239.63
Electrical Supplies	59.34	22.13		5.15	58.36	4.71	2123.74	2273.43
Explosives	30.68	8327.58					3.90	8362.16
Forage	482.50							482.50
Fuel	5.12		427.00	13,829.20		10675.30		24936.62
Groceries	6593.85							6593.85
Harness, Shoes, etc.	101.39							101.39
Hose		240.87		28.75	10.20	62.25	205.62	547.69
Iron and Steel	83.77	1017.46	10.50		130.13		356.11	1597.97
Lumber & Building Material	556.29	186.60		71.23	248.94	11.90	7562.11	8637.07
Machinery		96.00				32.00	16210.61	16338.61
Machinery Parts	42.39	230.75	1566.66	153.43	1209.56	51.20	240.02	3494.01
Meats, Fish, etc.	3787.72							3787.72
Mine Timber		1102.41						1102.41
Nails, Bolts, etc.	30.20	41.56	.21	3.80	34.58	.15	67.94	178.44
Oils and Waste	22.93	230.66		210.70	180.29	202.72	2.64	849.94
Office Supplies	288.41							288.41
Pipes and Fittings	11.08	536.13	3.63	142.40	41.24	21.24	2482.16	3237.04
Rails and Fastenings	.62	308.24				.84	25.44	335.14
Sacks, Bags, Twine etc.					970.35			970.35
Sundries	631.54	150.21	5.02	80.07	391.41	48.41	334.98	1,642.14
Tools	205.11	261.80	12.44	24.33	106.50	15.44	160.37	786.02
Totals	14285.68	13,953.89	2025.56	14070.93	3669.27	11179.18	30,611.43	89,795.94

Indicative of the cost of supplies delivered Cobalt, the following may be taken :

Meats,	8 to 12 cents per lb.
Penn. Bituminous Coal,	$5.40 to $5.80 per ton.
West Virginia Bituminous Coal,	5.80 to 6.00 per ton.
Lumber,	$14.00 to $20.00 per M., B. M.
Square Timber,	18.00 to 22.00 per M., B. M.
3″ to 5″ Round Lagging,	2 cents per lin. ft.
12 inch Round Timber	7 cents per lin. ft.
50% Dynamite,	14½ cents per lb.

Distribution of Labor and Supplies

	Labor	Supplies	Totals
Sundries	1981.76	675.47	2,657.23
Mine Office	3468.88	315.54	3,784.42
Superintendance	4629.02		4,629.02
Trenching	2532.11	72.88	2,604.99
Sinking	9633.37	12,105.22	33,322.24
Drifting	8421.86		
Crosscutting	4480.99		
Raising	2803.21		
Stoping	4547.59		
Timbering	3859.11	1,247.90	5,107.01
Loading and Tramming	10905.60	199.97	11,105.57
Pipefitting, Pump Repairs	410.32	213.65	623.97
Hoisting, Landing, Dumping.	6220.06	114.27	6,334.33
Steam and Air Plant Operation	4920.55	13,685.92	18,606.47
" " " Repairs	406.03	385.01	791.04
Sharpening Drill Steel	4851.55	456.62	5,308.17
Repairs to Air Drills	394.35	1,568.94	1,963.29
Sorting and Bagging Ore	1493.44	1,112.89	2,606.33
Mill Operations	13724.82	599.12	14,323.94
" Repairs	2578.06	1,957.26	4,535.32
Mill Power plant Operations	5604.54	10900.74	16,405.28
" " " Repairs	286.74	278.44	565.18
Sampling and assaying	2878.50	434.18	3312.68
Operating Shops	621.77	408.29	1,030.06
" Camp and Stables	2247.65	1,241.24	3488.89
Maintenance of Buildings	527.48	419.11	946.59
Road making and Repairs	662.74	50.54	713.28
Totals	96,322.10	48,443.20	144,765.30
Construction work	16183.98	30,356.31	46,540.29
Operating Boarding House	2564.99	10668.90	13223.89
Prospecting	2719.24	337.53	3056.77
Totals	117790.31	89795.94	207,586.25



Distribution of Milling Costs for 1909

Month	Concentrating				Repairs to Mill				Power - Light - Heat				Assaying				Grand Total			
	Labor	Stores	Total	Cost per ton	Labor	Stores	Total	Cost per ton	Labor	Stores	Total	Cost per ton	Labor	Stores	Total	Cost per ton	Labor	Stores	Total	Cost per ton
Feb	773.61	67.90	841.51	1.177					422.10	947.30	1369.40	1.915					1196.71	1015.20	2210.91	3.042
March	1336.75	60.40	1397.15	.911	187.70	30.26	217.96	.143	506.42	1038.18	1544.60	1.008	100.39	15.95	116.34	.075	2131.26	1144.79	3276.00	[illegible]
April	1238.45	82.73	1321.18	.869	343.47	169.12	562.59	.370	547.58	1024.56	1572.14	1.034	101.57	14.47	116.04	.076	2281.07	1290.88	3571.95	2.349
May	1173.16	86.96	1260.12	.718	257.09	138.35	395.44	.225	622.37	986.01	1608.38	.916	123.86	14.67	138.53	.079	2176.47	1225.99	3402.46	1.938
June	1374.52	72.31	1446.83	.889	341.98	366.05	708.03	.435	506.24	980.13	1486.37	.913	112.49	24.25	136.74	.084	2335.23	1442.74	3777.97	2.32
July	1350.78	27.95	1378.73	.758	242.90	219.36	462.26	.254	530.08	1048.50	1578.58	.869	122.79	26.97	149.76	.082	2246.55	1322.78	3569.33	1.962
Aug	1309.23	81.07	1390.30	.743	210.48	248.95	459.43	.245	518.65	1020.74	1539.39	.823	105.18	22.80	127.98	.068	2143.54	1373.56	3517.10	1.880
Sept	1336.88	30.90	1367.78	.702	291.44	197.38	488.82	.251	552.72	1039.21	1591.93	.817	107.29	25.39	132.68	.068	2288.33	1292.88	3581.21	1.838
Oct	1368.67	24.71	1393.38	.705	223.87	168.08	392.55	.198	474.27	1005.13	1479.40	.748	97.50	12.87	110.37	.056	2164.31	1211.09	3375.40	1.708
Nov	1,252.88	31.40	1284.28	.629	205.25	158.45	363.70	.179	506.33	1024.27	1530.60	.750	104.22	35.46	139.68	.068	2068.68	1249.58	3318.26	1.626
Dec	1209.89	32.79	1242.68	.655	223.88	260.66	484.54	.255	604.52	1065.16	1669.67	.877	104.22	32.27	136.49	.072	2142.51	1390.87	3533.38	1.857
—	13,724.82	599.12	14,323.94	.705	2578.06	1957.26	4,535.32	.242	5791.28	11,179.18	16970.46	.907	1079.50	225.10	1304.60	.071	23173.66	13960.66	37134.32	1.08[illegible]

Costs for December were high owing to the fact that the mill was shut down for two days at Christmas to allow time for certain repairs, and also because of the laying in of a 400 ton surplus stock of coal, the costs of handling which were charged into December operating costs.

As a matter of interest I would say, that for January, 1910, milling costs have been reduced to $1.48 per ton, although we are still using expensive steam power, and have not yet started to operate the extension to the mill.

The cost of operating the McKinley-Darragh boarding house was made up of—

Sundries, - - - - - - - -	$ 76.05
Hardware, - - - - - - - -	15.45
Camp Supplies, - - - - - - -	34.45
Fuel, - - - - - - - -	413.75
Groceries, - - - - - - - -	6,419.68
Meats and Fish, - - - - - - -	3,699.52
	$10,658.90
Labor, - - - - - - -	2,564.99
	$13,223.89

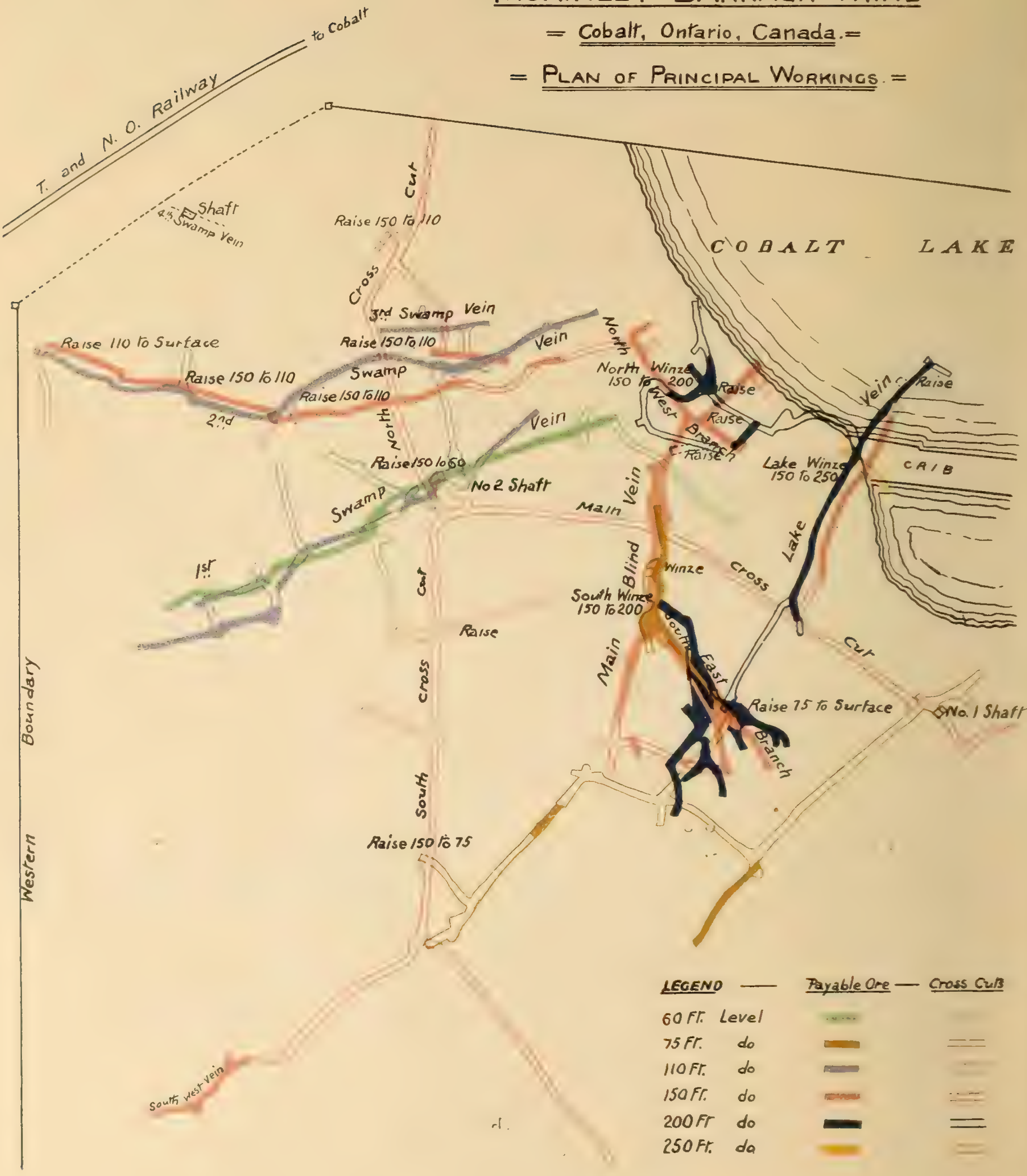
Men were charged 60c. per day for board and bed, this charge netting $13,569.15 and showing a surplus of $345.26. Against this surplus are the wages of chore-boy, maintenance of buildings, insurance, etc., so that the camp shows a small loss for the year.

Rents received from employees for dwellings amounted to $791.50, which amount has been credited in miscellaneous charges.

— McKinley-Darragh Mine —

= Cobalt, Ontario, Canada. =

= Plan of Principal Workings. =



EXPENDITURES FOR EXTENSIONS AND ADDITIONS TO PLANT.

	LABOR.	SUPPLIES.	TOTALS.
Completing Original Mill,	$ 7,774.06	$ 9,628.80	$17,402.86
Extension to Mill,	4,028.99	14,684.41	18,713.40
New Laboratory, Ore House and Concentrate Dry House,	1,762.08	2,282.68	4,014.76
New Office and Store,	973 44	1,075.43	2,048.87
Ice House,	74.86	76.04	150.90
Hungarian Shanty,	128.36	180.45	308.81
Mill Siding,	207.93	13.60	221.53
Change House, No. 1 Shaft,	152.76	190.44	343 20
Shift Boss' Office and Landing, No. 1 Shaft,	171.10	290 93	462.03
Fire Protection System,	36.80	374.04	410.84
Heating System,	374.13	481.68	855.81
Water Supply System,	362.27	236.37	598.64
Drill Sharpener,	137.20	89.44	226.64
3 New Air Drills,		586.00	586.00
2 Ore Buckets,		70.00	70.00
2 Ore Cars,		96.00	96.00
Total, McKinley-Darragh,	$16,183.98	$30,356 31	$46,540.29

MINING.

We have continued our policy of doing a relatively large amount of crosscutting, and the results, in locating new ore bodies, have demonstrated the value of this method of prospecting.

Stoping.—While approximately 3,000 cubic yards of ore have been broken in the stopes during the year, but little over one half of this has been removed from the mine, the balance being still in the stopes, ready to be drawn off and treated in the mill when required.

At the beginning of the year we had a large amount of ore broken in the mine, awaiting treatment by the mill.

Around our No. 1 Shaft, which is the hoisting shaft, there had accumulated a considerable tonnage of low grade ore which was also destined for the mill. This broken ore in the mine and on the dumps interfered greatly with our development work, as it had to be removed before good progress could be made.

As you are aware, the No. 1 Shaft is located in a gully, with our discovery vein on the north, power plant on the west, T. & N. O. Railway on the south and a hill side on the east, leaving a very constricted area available for waste and ore dumps.

In order to carry on crosscutting it is necessary to have space in which to dump the waste rock, and it was to provide this space that we milled a quantity of ore which was lying around No. 1 Shaft.

During the year we have overcome these difficulties and provided sufficient waste dump space to carry us through the coming year, so that we shall be able to carry on our mining operations under more favorable conditions.

Accompanying are plans showing the location of veins upon the property, and also sectional elevations showing development, stoping and estimated reserves of the principal ore bodies. Reference to these will guide you in understanding the following remarks:

LAKE VEIN.—Development work consists of 194 feet of drifting on 150-ft. level; 480 feet of drifting on 200-ft. level; winze from 150 to 250 feet. The vein cut off at 235 feet in the winze but is almost certain to be picked up again at 250 feet by means of a crosscut. This vein is in conglomerate and lower Huronian.

Estimated ore reserves and silver contents,
13,000 tons at 45 ozs.=585,000 ozs.

BLIND VEIN.—This vein has been stoped out above the 75-ft. level, and considerable stoping has been done between the 150 and 75-ft. levels. On the 150-ft. level drifting amounts to 545 feet, and on the 200-ft. level 320 feet of drifting have been done, and two winzes sunk between 150 and 200 feet. This vein is in conglomerate and lower Huronian.

Estimated ore reserves and silver contents,
22,000 tons at 65 ozs.=1,430,000 ozs.

FIRST SWAMP VEIN.—Drifting 60-ft. level 384 feet; 110-ft. level 445 feet; 135-ft., 28 feet. Raise from 135-ft. to 60-ft. Considerable stoping has been done above 60-ft., and a small amount on the 110-ft. level. The vein is in conglomerate and slate.

Estimated ore reserves and silver contents,
18,000 tons at 55 ozs.=990,000 ozs.

SECOND SWAMP VEIN—Drifting 110 ft. level, 475 feet; 150 ft. level, 390 feet; three raises from 150 to 110 ft., and one raise from 110 ft. to surface.

This vein is in conglomerate and slates. A small amount ot stoping has been done on the 150 and 110 ft. levels.

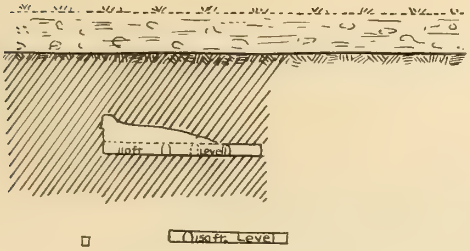
Estimated ore reserves and silver contents,
20,000 tons at 55 ozs.=1,100,000 ozs.

— McKINLEY-DARRAGH MINE —

— Cobalt, Ontario Canada —

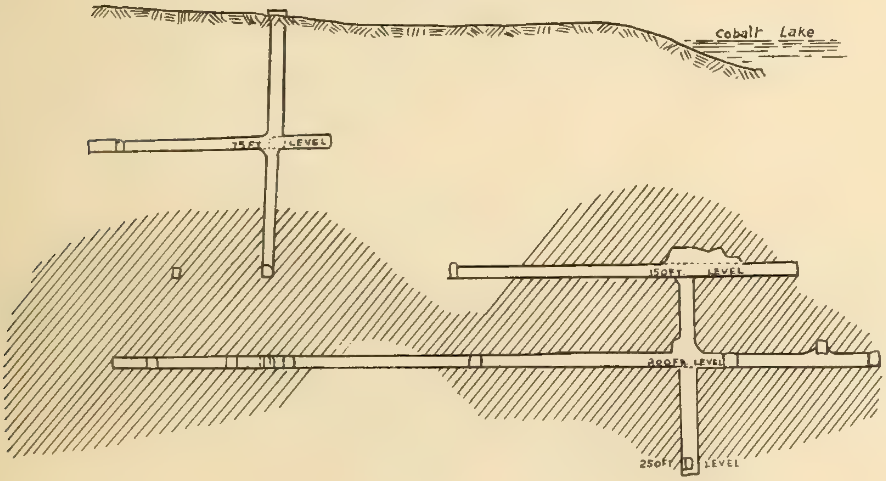
~ Vertical Section on Third Swamp Vein ~

Tons = 3000 Oz. = 150,000



~ Vertical Section on Lake Vein ~

Tons = 13000 Oz. = 585,000



— *Payable Ore shewn Hatched* —

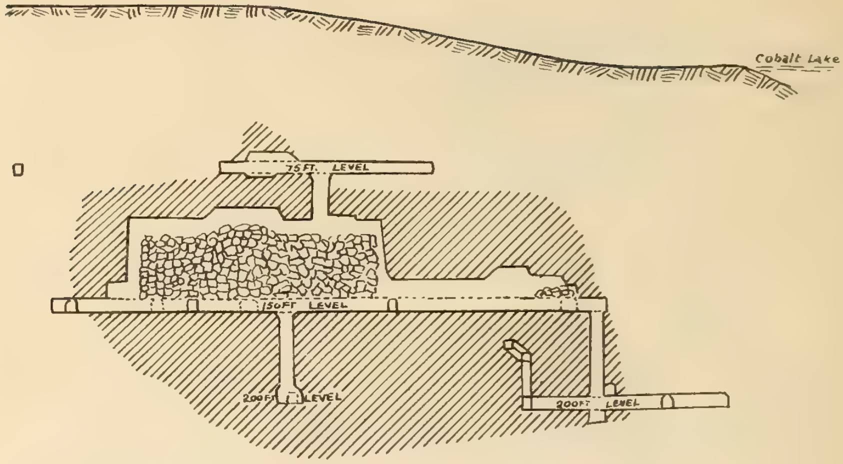
— McKINLEY-DARRAGH MINE —

— Cobalt. Ontario. Canada —

— Vertical Sections —

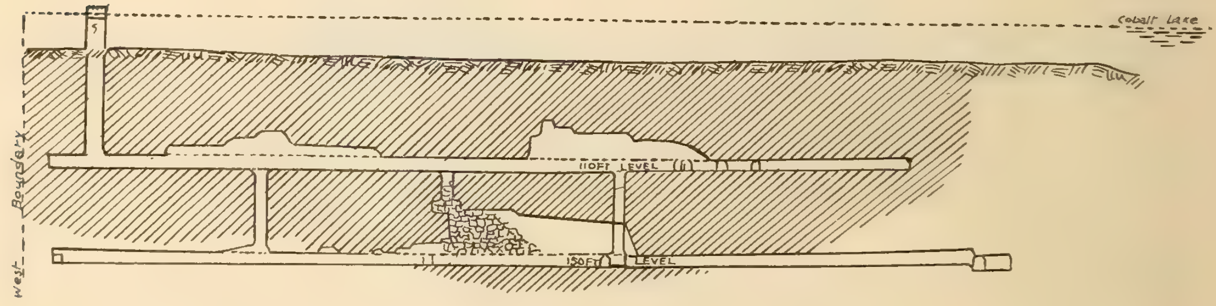
~ Main Blind Vein ~

Tons = 11,000   Oz. = 724,000



~ Second Swamp Vein ~

Tons = 20,000   Oz = 1100,000



— Payable Ore shewn Hatched —

THIRD SWAMP VEIN—82 feet of drifting on 110 ft. level with 30 feet of raise above this level. Good ore in the floor, backs and west face. This vein is in slate, as far as proven.

Estimated ore reserves and silver contents,
3,000 tons at 50 ozs.=150,000 ozs.

The foregoing constitute the ore bodies upon which the bulk of development work has been done.

Besides these there are:

NO. 7 VEIN—stoped out under ground, but still a considerable amount of payable ore in open cut south of shaft.

FOURTH SWAMP VEIN—Trenched on surface 100 feet, shaft sunk 20 feet, and vein proved at 75 feet, by workings of Right of Way Mining Co.

Discovery vein at edge of lake, large tonnage of low grade ore, and some good high grade ore in cut, at present under water.

North west stringers from blind vein proved for 120 feet by drifts and crosscuts on 150 ft. level, veins are three-quarters of an inch in width, and carry 1000 ozs. per ton.

SOUTH WEST VEIN—80 feet of drifting on 150 ft. level in good ore.

For purposes of including in this report I estimate that these miscellaneous ore bodies will yield 15,000 tons, having a gross value of 30 ozs. per ton, giving a total of 450,000 ozs.

Work upon these veins has not been pushed, for the reason that the output from the rest of the mine has been all that we could handle.

Last year, ore on dumps was estimated at 10,000 tons. During 1909 we have milled 3178 tons of this. The estimate of last year was too conservative, and we still have approximately 9000 tons of milling ore upon the dumps, which will contain 30 ozs. per ton, or a gross value of 270,000 ozs.

RECAPITULATION OF ESTIMATES.

Lake Vein,	13000	tons at	45	ozs.,	585,000 ozs.
Blind Vein,	22000	“	65	“	1430,000 “
1st Swamp,	18000	“	55	“	990,000 “
2nd Swamp,	20000	“	55	“	1100,000 “
3rd Swamp,	3000	“	50	“	150,000 “
Miscellaneous,	15000	“	30	“	450,000 “
Dumps,	9000	“	30	“	270,000 “
	100000				4975,000 ozs.

Having made arbitrary allowances for extensions of the ore bodies beyond the limits of our workings as at January 1st, it is obvious that exact figures would be misleading in regard to the accuracy of my estimates, and I have therefore used the nearest even thousands, as these figures are more easily carried in the mind and are sufficiently close to the truth for the purposes of this report.

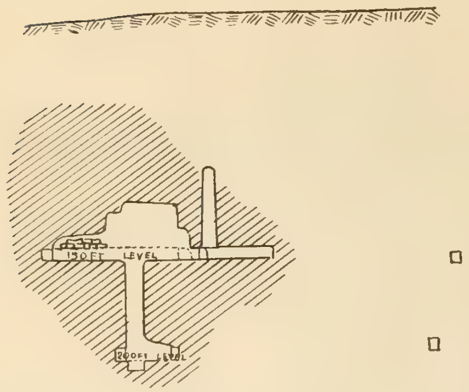
— McKINLEY-DARRAGH MINE —

— Cobalt, Ontario Canada —

— Vertical Sections —

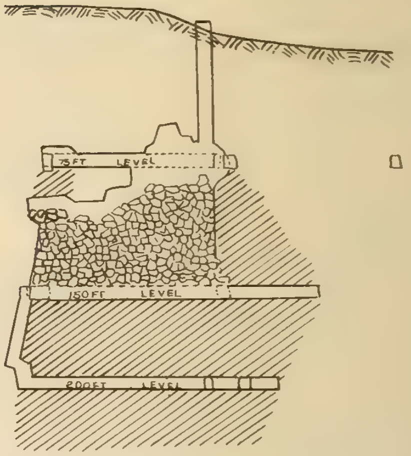
~ Blind Vein, North West Branch ~

Tons = 5000 Oz = 325,000



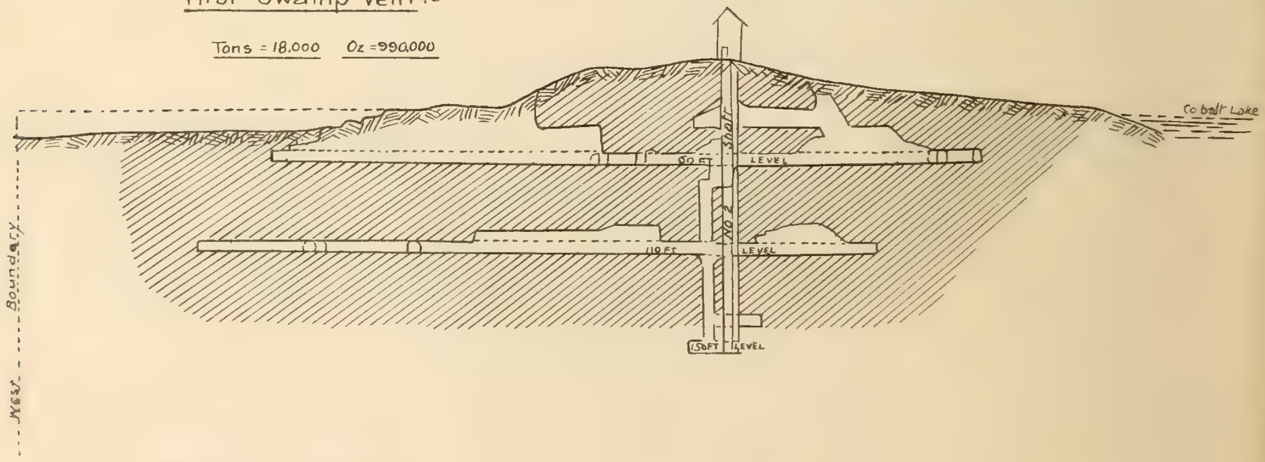
~ Blind Vein, South East Branch ~

Tons = 6000 Oz = 380,000



~ First Swamp Vein ~

Tons = 18,000 Oz = 990,000



— *Payable Ore shewn Hatched* —

Referring to the tabulated figures covering ore production for the year, and taking the months since we started milling, the yield per ton has been—

MONTH.	TONS MILLED.	TOTAL OUNCES FOR MONTH.	OUNCES PRODUCED PER TON MILLED.
February, - - - -	715	25,364	35.47
March, - - - -	1,533	69,737	45.42
April, - - - -	1,520	92,232	60.68
May, - - - -	1,755	141,855	80.83
June, - - - -	1,627	118,694	72.95
July, - - - -	1,817	81,303	44.74
August, - - - -	1,870	148,374	79.30
September, - - -	1,948	118,944	61.06
October, - - - -	1,976	131,478	66.54
November, - - - -	2,040	121,143	59.38
December, - - - -	1,902	85,284	44.84
	18,703	1,134,408	60.65

These results are higher than we can hope to maintain throughout the life of the mine, and in order to place a more definite valuation upon our ore reserves, during the month of December we milled ore which could be taken as more representative of the whole mine, as follows:

1st Swamp Vein,	110 ft. level, - - - - - - -	837 tons.
Blind Vein,	150 " " - - - - - - -	495 "
South West Vein,	150 " " - - - - - - -	36 "
Lake and Blind Veins,	200 " " - - - - - - -	534 "
		1902 tons.

The recovery for the month was 85,284 ozs., or 44.84 ozs. per ton, and the average mill tailings carried 6.26 ozs. per ton, making a total value per ton of 51.10 ozs.

It is not possible without any extensive development work, and sampling, to accurately gauge the value of the ore reserves, owing to the great variations in values which occur within a few feet. In one case, the Blind Vein, at 75 ft. is about two inches in width and carries 4,500 to 5,000 ozs. per ton. There is little silver in the wall rock, and the stopes have to be carried as narrow as possible. At 150 feet the vein is split into smaller veins which carry from 2,000 to 2,500 ozs. per ton, and there is considerable value in the wall rock, permitting stoping widths of over ten feet in places. At 200 feet the stringers are more numerous, smaller, carry from 1,500 to 2,000 ozs. per ton and the wall rock is not so heavily mineralized as at 150 feet. Like variations occur in the other veins, and it will therefore be understood that figures must be approximate, but I believe that those given above are a conservative estimate of our probable ore reserves, as they are based upon some hundreds of samples, and are checked by actual returns from milling.

To estimate the possible ore, as distinguished from the probable ore, is a still more difficult matter.

On the north, Cobalt Lake Mining Co. is working two rich veins which run into our property and which appear to be continuations of our 1st and 2nd Swamp Veins. This being so, we could expect an addition of 300 feet to the known lengths of each of these veins. My policy is to leave the 4½ acres, which we own under the lake, until the rest of the mine is worked out, so as to avoid any possibility of flooding our workings.

Near our northwest corner The Right of Way Mining Co. is working a vein which is yielding good ore, and which appears to be an extension of our 4th Swamp Vein, upon which we have as yet done no development work.

On our west, the Princess has two veins making toward our property. It is possible that one of these is an extension of our 1st Swamp Vein, which fact would add 100 feet to the length of this vein as developed at present.

Our No. 7 Vein, (an extension of the Kendal Vein of the Nipissing), constitutes another factor in possible ore reserves. There is still some ore to be stoped on the surface, and at 120 ft. a strong calcite vein in diabase remains to be explored. During the past year only a small amount of work was done upon No. 7. We have in the south east portion of the claim, several veins of smaltite, which carry small silver values on the surface. Nothing has been done to prove these at depth.

In the western portion of the property we have found by means of crosscutting, seven small silver bearing veins of calcite and smaltite, upon which no work has been done other than locating them by means of crosscuts; there is always a possibility that some of these will develop into good producers upon further development.

In the matter of depth, we have not carried on any exploratory work below 200 feet. One winze has been sunk on the Lake Vein to 250 feet, but nothing further has been done, as the development work on the upper levels has kept our plant going at full capacity. There are indications that the ore chutes of the Blind and Lake Veins dip to the south, which, if true, will give us ore at still lower levels. This, however, is a matter of conjecture at present.

From the foregoing, it will be evident to you, that while in the matter of estimating probable reserves, we are bound within more or less definite limits, the possibilities of the property may be discounted as having much wider limits, and there is every reason to expect that the life of the mine will be materially increased by the development of some of the factors at present classed as "possibilities," or by the opening up of new ore bodies at present undiscovered.

McKINLEY-DARRAGH MILL

MILLING.

The new mill was started on February 8th, when ten stamps were put into commission, followed on March 11th by the remaining ten.

Record of Ore Milled and Extraction

Month	Ore Treated			no of Stamp days run	average tons per day	Mill Heads	Mill Tails	Ounces of Silver recovered in mill	% Silver recovered in mill	Oz Silver stored in Slimes dam
	Mine	Dump	Total							
February	715		715	12.50	57.20			18,964.58		
March	1,533		1,533	26.00	59.73			54,636.95		
April	1,463	57	1,520	25.50	59.61	48.65	7.21	61,643.49	83.36	1350
May	1,427	328	1,755	25.50	68.82	56.32	7.82	84,365.79	84.42	1850
June	476	1151	1,627	25.50	63.80	51.63	7.50	70,253.25	83.63	1550
July	887	930	1,817	26.00	69.40	44.81	7.37	65,973.55	81.43	1450
Aug	1,816	54	1,870	25.67	72.85	55.60	7.20	88,634.71	85.15	1980
Sept	1,699	249	1,948	25.55	76.24	52.61	7.34	86,286.45	84.19	1900
Oct	1,567	409	1,976	25.62	77.13	47.79	6.62	80,733.13	85.12	1800
Nov.	2,040		2,040	25.75	79.22	47.82	6.23	82,488.30	85.07	1850
Dec	1,902		1,902	24.30	78.27	39.88	6.26	62,544.25	82.45	1400
Total	15,525	3178	18,703					756,924.45		15,130

Distribution of Milling Costs for 1909

Month	Concentrating				Repairs to Mill				Power-Light-Heat				Assaying				Grand Total			
	Labor	Stores	Total	cost per ton	Labor	Stores	Total	cost per ton	Labor	Stores	Total	cost per ton	Labor	Stores	Total	cost per ton	Labor	Stores	Total	cost per ton
Feb	773 61	67.90	841 51	1.177					422.10	947 30	1369 40	1.915					1195.71	1015.20	2210.91	3.092
March	1336 75	60.40	1397.15	.911	187 70	30.26	217 96	.143	506 42	1038 18	1544 60	1.008	100 39	15 95	116 34	.075	2131 20	1144 79	3276 00	2.137
April	1238 45	82 73	1321 18	.869	393 47	169.12	562 59	.370	547 58	1024.50	1572 08	1.034	101.57	14 47	116 04	.076	2281 07	1290 88	3571 95	2.344
May	1173.16	86 96	1260 12	.718	257 09	138.35	395 44	.225	622 37	986.01	1608 38	.916	123.86	14 67	138 53	.079	2176 47	1225 99	3402 46	1.938
June	1374 52	72 31	1446 83	.889	341 98	366 05	708 03	.435	506 24	980.13	1486 37	.913	112 49	24 25	136 74	.084	2335 23	1442 74	3777 97	2.321
July	1350 78	27 95	1378 73	.758	242 90	219.36	462 26	.254	530 08	1048 50	1578 58	.869	122 79	26.97	149 76	.082	2246 55	1322 78	3569 33	1.963
Aug	1309.23	81.07	1390.30	.743	210 48	248 95	459 43	.245	518 65	1020 74	1539 39	.823	105 18	22.80	127.98	.068	2143 54	1373 56	3517 10	1.880
Sept	1336.88	30.90	1367.78	.702	291.44	197 38	488 82	.251	552.72	1039.21	1591 93	.817	107 29	25 39	132.68	.068	2288 33	1292 88	3581.21	1.838
Oct	1368 67	24 71	1393.38	.705	223 87	168 68	392 55	.198	474.27	1005 13	1479 40	.748	97.50	12 87	110 37	.056	2164 31	1211 39	3375 70	1.707
Nov	1,252.88	31 40	1284 28	.629	205 25	158 45	363 70	.179	506 33	1024 27	1530 60	.750	104 22	35 46	139.68	.068	2068 68	1249 58	3318.26	1.626
Dec	1209 89	32.79	1242 68	.653	223 88	260 66	484 54	.255	604 52	1065 15	1669 67	.877	104 22	32 27	136 49	.072	2142.51	1390 87	3533 38	1.857
—	13,724.82	599.12	14,323 94	.705	2578 06	1957 26	4,535 32	.242	5791 28	11,179 18	16970 46	.907	1079 50	225 10	1304 60	.071	23173.66	13960.66	37134.32	1.985

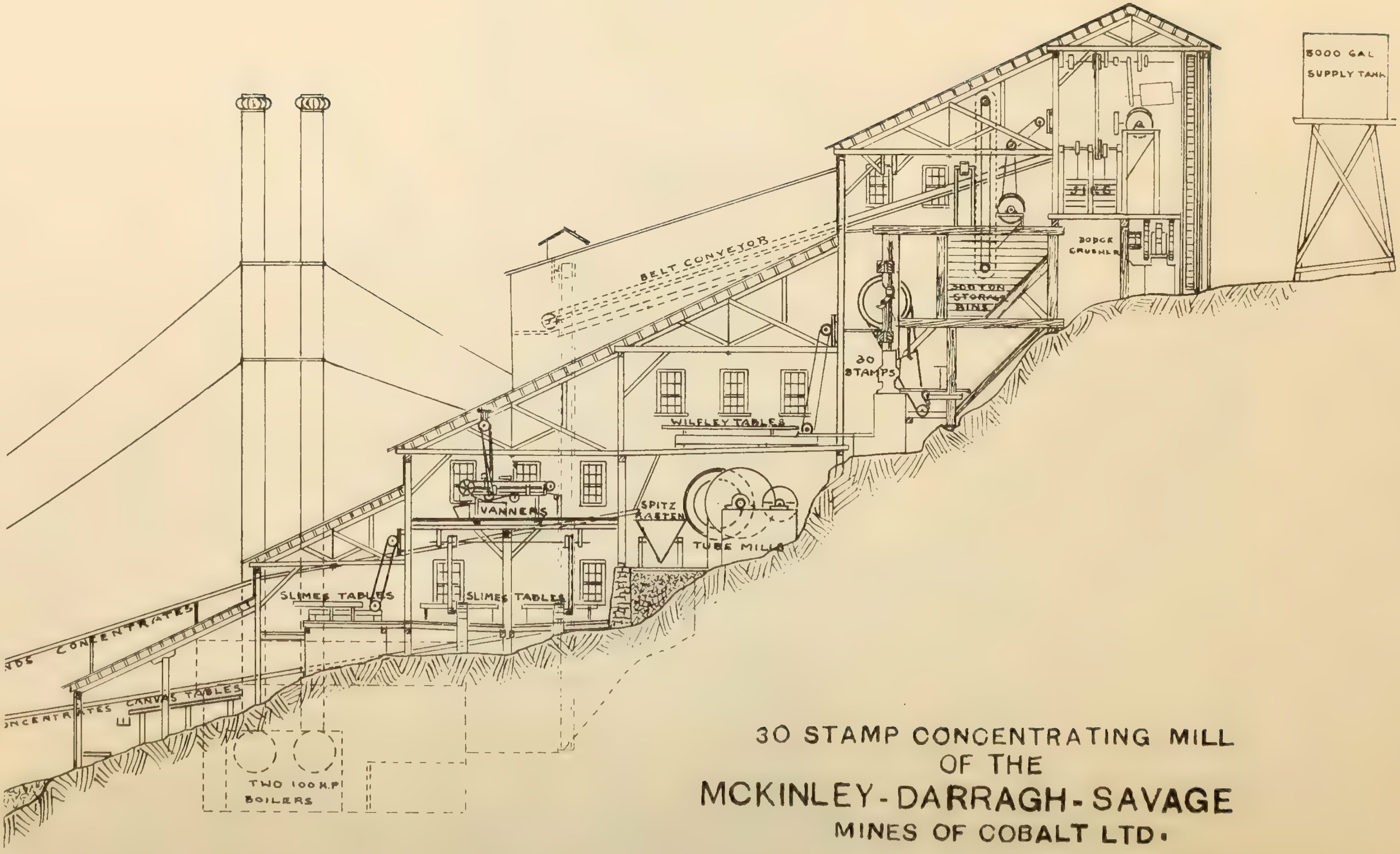
Considerable experimenting was required at first before the mill could be worked up to its full capacity, and it was not until May that satisfactory results could be depended upon. Since then there has been a steady increase in tonnage treated, and a corresponding decrease in costs.

The costs for the month of December were unusually high, due to the shutting down of the mill for two days at Christmas in order to make certain repairs, and also due to the laying in of a surplus stock of coal, the costs of handling which were charged into December operations.

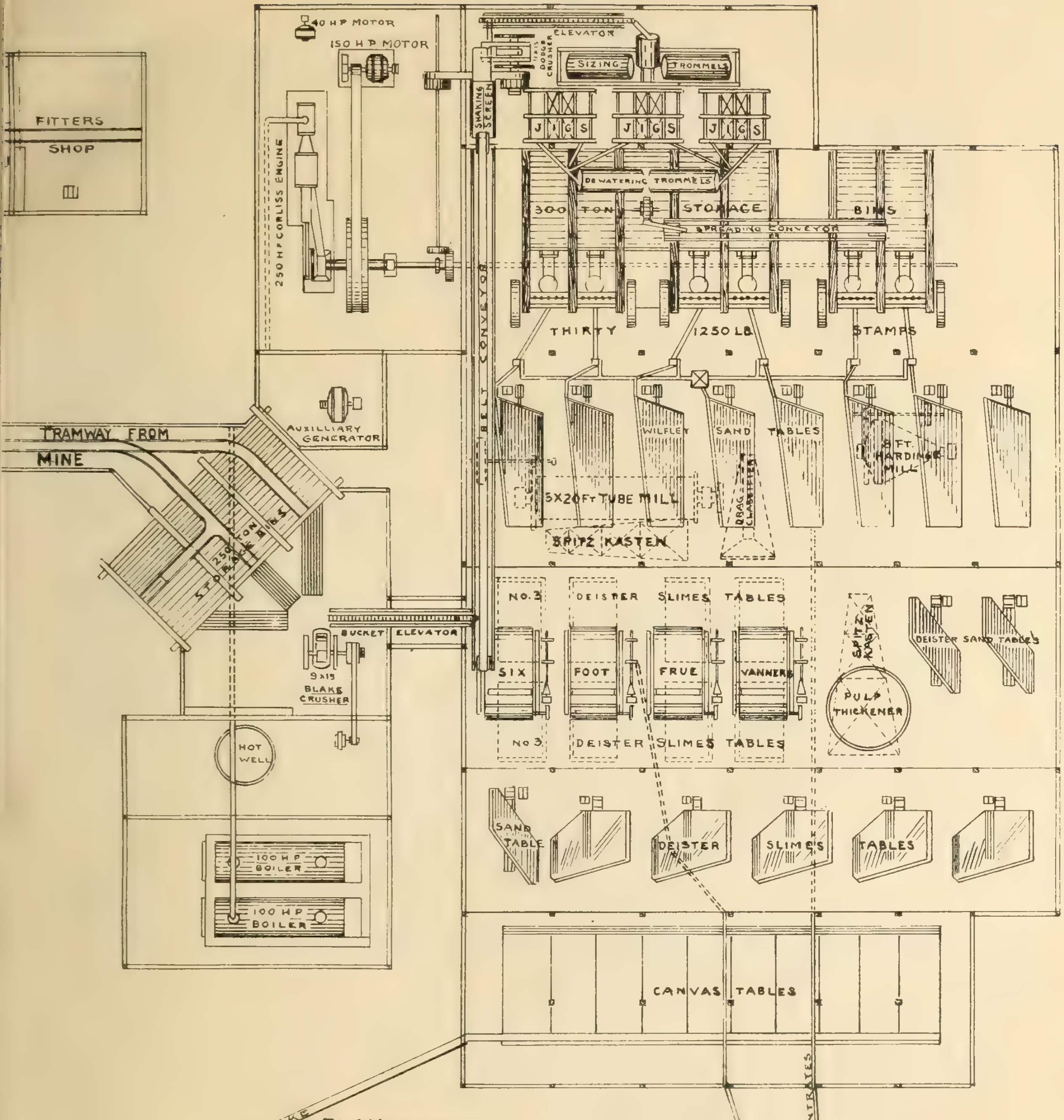
During the first month of 1910, we have treated an average of 83.5 tons daily at a cost of $1.48 per ton; a decided improvement over previous performances.

The mill is operated six days per week, which accounts for the comparatively high milling costs when compared with those of other camps.

All coarse crushing and jigging are done in one shift, but the balance of the mill, from the stamps on, is operated 24 hours per day.



30 STAMP CONCENTRATING MILL
OF THE
MCKINLEY-DARRAGH-SAVAGE
MINES OF COBALT LTD.



PLAN OF McKINLEY-DARRAGE MILL

MEN EMPLOYED IN MILL.		
	DAY SHIFT.	NIGHT SHIFT.
Foreman, - - - - - - - - - - - - -	1	1
Sorting out high grade ore, feeding crushers, - - - - -	3	
Operating and cleaning jigs, sampling and bagging jig concentrates,	3	
Drying, bagging, sampling, and storing table concentrates, - -	2	
Stamp men, - - - - - - - - - - -	1	1
Sand Tables and Vanners, - - - - - - - - -	1	1
Slimes Tables, - - - - - - - - - - -	1	1
Engineers, - - - - - - - - - - - -	1	1
Firemen, - - - - - - - - - - - -	1	1
Coal Passer, - - - - - - - - - - -	1	
	15	6

MILL EXTENSION.

During the year it became evident that the mine was opening out to such an extent that an increase in milling capacity was desirable, and an extension has been built consisting of ten 1250 lb., stamps, one 8 ft. Hardinge pebble mill, twelve shaking tables and a set of canvas tables.

The following tabulation shows more concisely the relation between the original mill and the new extension.

APPARATUS.	NUMBER IN ORIGINAL MILL.	NUMBER IN EXTENSION.	% INCREASE IN CAPACITY.	TOTAL NUMBER IN EXTENDED MILL.
Jigs, - - - - -	6			6
Stamps, - - - -	20	10	50%	30
Sand Tables, - - -	4	6	100%	10
Tube Mills, - - -	1	1	100%	2
Vanners, - - - -	4			4
Slime Tables, - - -	8	5 Slime; 1 Sand.	90%	14
Canvas Tables, - - -		10		10

It will be noticed that our stamping capacity has been increased but 50 per cent. while the tables and fine grinding tube mills have been increased 100 per cent. This gives us a better balanced mill, as in the past we have had insufficient tables to treat efficiently all of the product obtainable from the stamps.

The extended mill can treat 140 tons per day, but it is expected that only from 110 to 120 tons daily will be milled. The extension is almost completed and some of the tables are already operating.

Attached "flow sheet," plan and elevation of the mill illustrate the process of concentration in its various details. A photograph of the extended mill is also attached hereto.

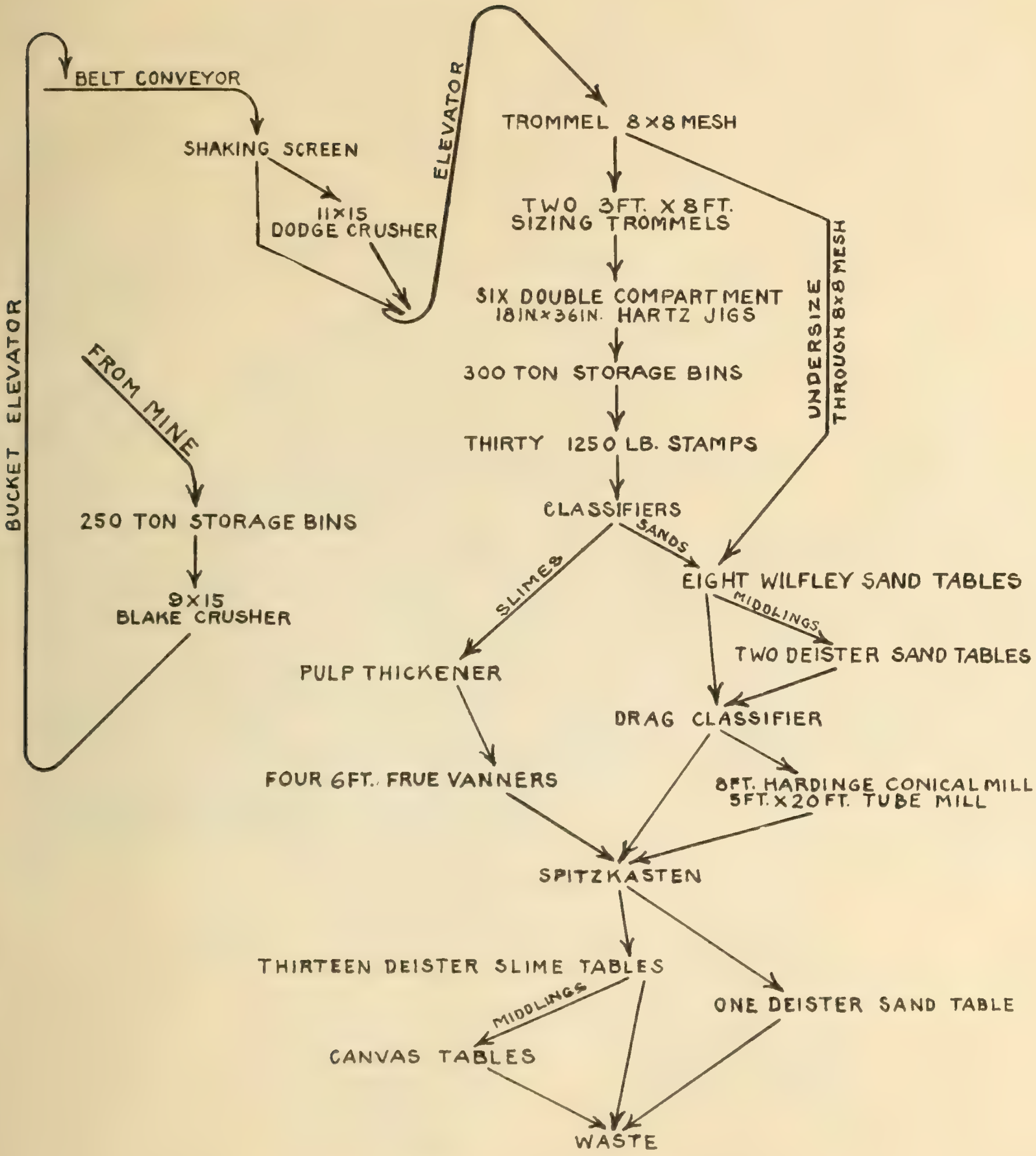


DIAGRAM ILLUSTRATING FLOW OF ORE THROUGH MILL

So far, it has not been demonstrated that any other process of extraction possesses commercial advantages over straight concentration as practiced by us, but there is every hope that the cyanide process will be developed to a point which will insure increased profits from milling.

Within a few weeks we expect to be driving the mill by electricity, developed from water power, a change which will net considerable saving in the cost of power. This saving in power costs, taken with the increased tonnage to be treated, will enable us to reduce milling costs to approximately $1.30 per ton.

A further economy will also be achieved through the installation of canvas tables, making possible a higher extraction of the values, and it is hoped that the values in our tailings will be cut down to between four and five ounces per ton.

SAVAGE CLAIM.

EXTENT OF MINING OPERATIONS.

	YEAR 1909.	PREVIOUS.	TOTAL TO DATE.	ABANDONED.
Shafts, - - - - - -	180 ft.	508 ft.	688 ft.	140 ft.
Drifts, - - - - - -	303 ft.	517 ft.	820 ft.	399 ft.
Crosscuts, - - - - -	28 ft.	403 ft.	431 ft.	403 ft.
TOTALS, - - - - -	511 ft.	1428 ft.	1938 ft.	942 ft.
Stoping, - - - - - -	90 cu. yds.	100 cu. yds.	190 cu. yds.	130 cu. yds.
Trenching, - - - - -	5800 ft.	4000 ft.	9800 ft.	

PRODUCTION OF SILVER.

Year, 1908, - - - - -	22,654.82 ounces.
Year, 1909, - - - - -	62,181.52 ounces.
Total, - - - - -	84,836.34 ounces.

COSTS OF OPERATIONS, 1909.

INSURANCE, TAXES AND MISCELLANEOUS.		$381.10
SUPPLIES		
Miscellaneous, - - - - - -	$3801.09	
Explosives, - - - - - - -	1798.64	
Fuel, - - - - - - - -	7517.71	
		13,117.44
Labor, - - - - - - - - -		28,279.55
TOTAL, - - - - - -		$41,778.09

SAVAGE MINE

COST OF OPERATING BOARDING HOUSE AND CAMP.

Supplies,	$3937.38
Labor,	1440.00
	$5377.38

Men have been charged 60 cents per day for bed and board, deductions from pay roll on this account amounting to $4969.25, which shows a deficit of $408.13, and which latter amount has been charged to labor.

The average number of men employed upon operations has been:

1 Superintendent
1 Master Mechanic
1 Cook
1 Chore Man
1 Teamster
3 Engineers and Firemen
2 Hoistmen
2 Landers
4 Surface Laborers
1 Hammersman
1 Blacksmith
1 Blacksmith Helper
1 Timberman
1 Timberman Helper
1 Pumpman
3 Muckers
4 Drill Runners
4 Drill Runners Helpers

33

It is rather a misnomer to speak of work upon the Savage as Operations, as nothing but exploration and development has been done.

Returns from McKinley-Darragh having provided funds for dividends, plant extensions and operations, we have been able to proceed slowly, and therefore economically, in developing the Savage.

The entire year has been spent in converting this property from a "prospect" into a developed mine, and although the costs have been charged into "operations" they might better be considered as "equipment."

During the past year, the importance of the claim as a valuable asset, has developed steadily.

With payable ore in No. 2 Shaft from 40 feet down to 112 feet; No. 3 Vein proven to carry rich values over a distance of several hundred feet; the discovery on the surface of No. 4 Vein carrying nuggets, and several other promising veins carrying cobalt, it has gradually become evident that the Savage is worthy of serious consideration as a mine.

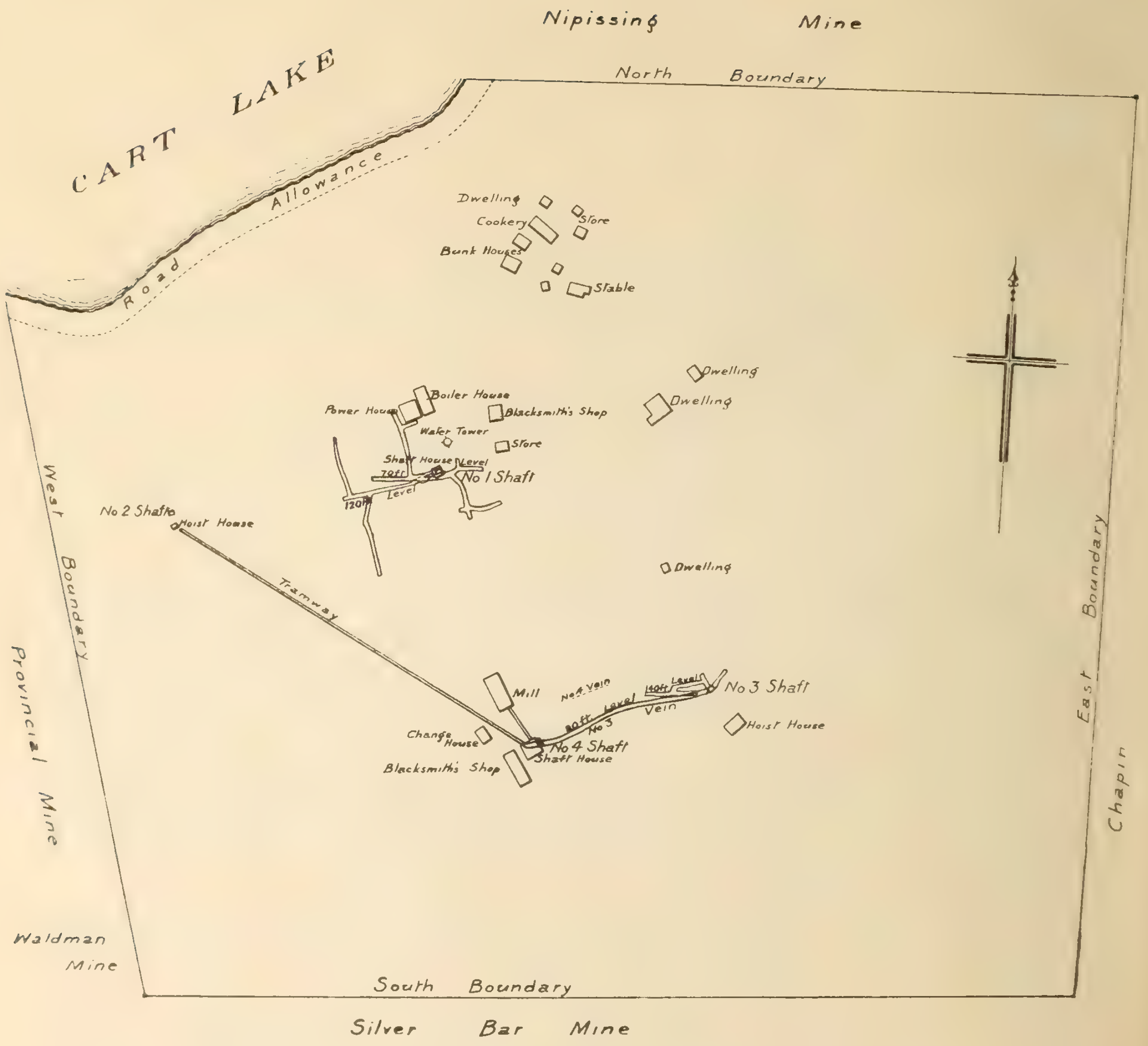
The power plant at present existing upon the property is entirely inadequate for our work, and far greater progress would have been made during the last four months of 1909 if we had had sufficient power available to meet the increased demands made by pumps, drills and hoists.

In fact, during the last three months so great has been the demand for pumping, that we have been able to operate but one drill.

We have been misled by those Companys which propose to supply compressed air and electricity to the camp, as their repeated assurances led us to believe that an abundance of cheap power for all purposes would be available in October and November. With this power supply constantly expected, it has not seemed advisable to spend

— SAVAGE MINE —

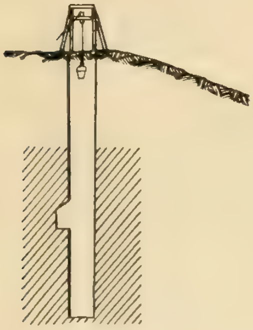
— Plan of Workings —



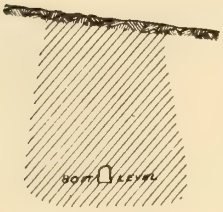
— SAVAGE MINE —

— Cobalt, Ontario, Canada —

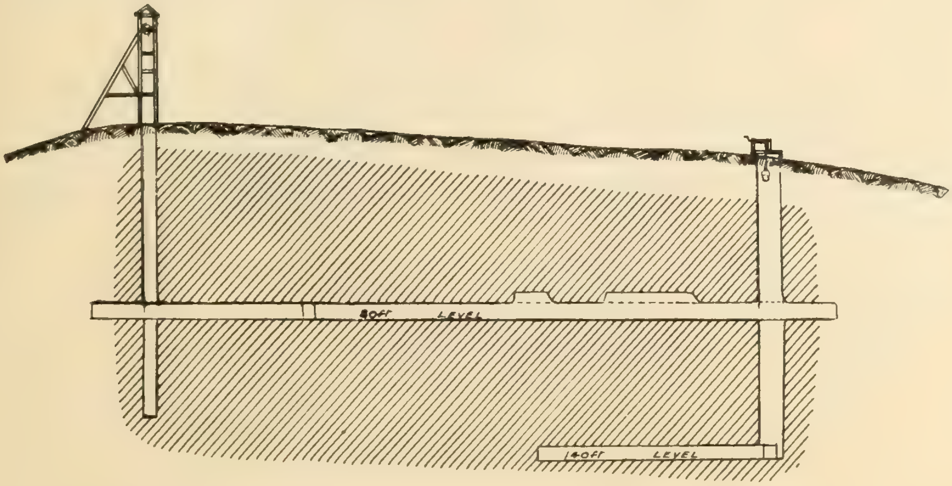
~ Vertical Section on No 2 Vein ~



~ Vertical Section on No 4 Vein ~



~ Vertical Section on No 3 Vein ~



Payable Ore shewn Hatched

anything in supplementing our present plant, and the consequence is that we are still struggling along with insufficient power to enable us to push the development of the Savage as it merits. The Power Supply Companys are working steadily upon the installation of their plants and it is probable that there will be a supply of power available in the near future.

With the opening out of the Savage, it became evident that we would be warranted in putting in a somewhat elaborate ore sorting plant, so that the ore from the various workings could be brought to a central point for treatment. Such a plant has been built and is about completed, the system being as follows:

Ore is dumped into bins having a storage capacity of 100 tons. From these bins the ore is drawn out over a grizzley. On the grizzley the ore is washed down and the rich vein matter sorted out and cobbed free of waste. From the grizzley the ore is fed into a jaw crusher and the product from the crusher joins the fine material from the grizzley, both falling into a bucket elevator. The elevator delivers the crushed ore to a sizing screen which makes four products. The finest product from the screen goes to a concentrating table, the next two sizes go to two Hartz jigs. The hutch product from the jigs is elevated to the concentrating table referred to above.

The waste tails from the jigs and from the concentrating table flow out to a dump.

The oversize from the sizing screen is discharged onto a bumping table and is hand picked, the reject going to a dump, there to remain until such time as it will be possible to treat it further in our McKinley-Darragh mill.

The process is illustrated by the "flow sheet," and the details of the ore sorting plant are shown by the drawings accompanying this report, while the appearance of the plant is shown in the several accompanying photographs.

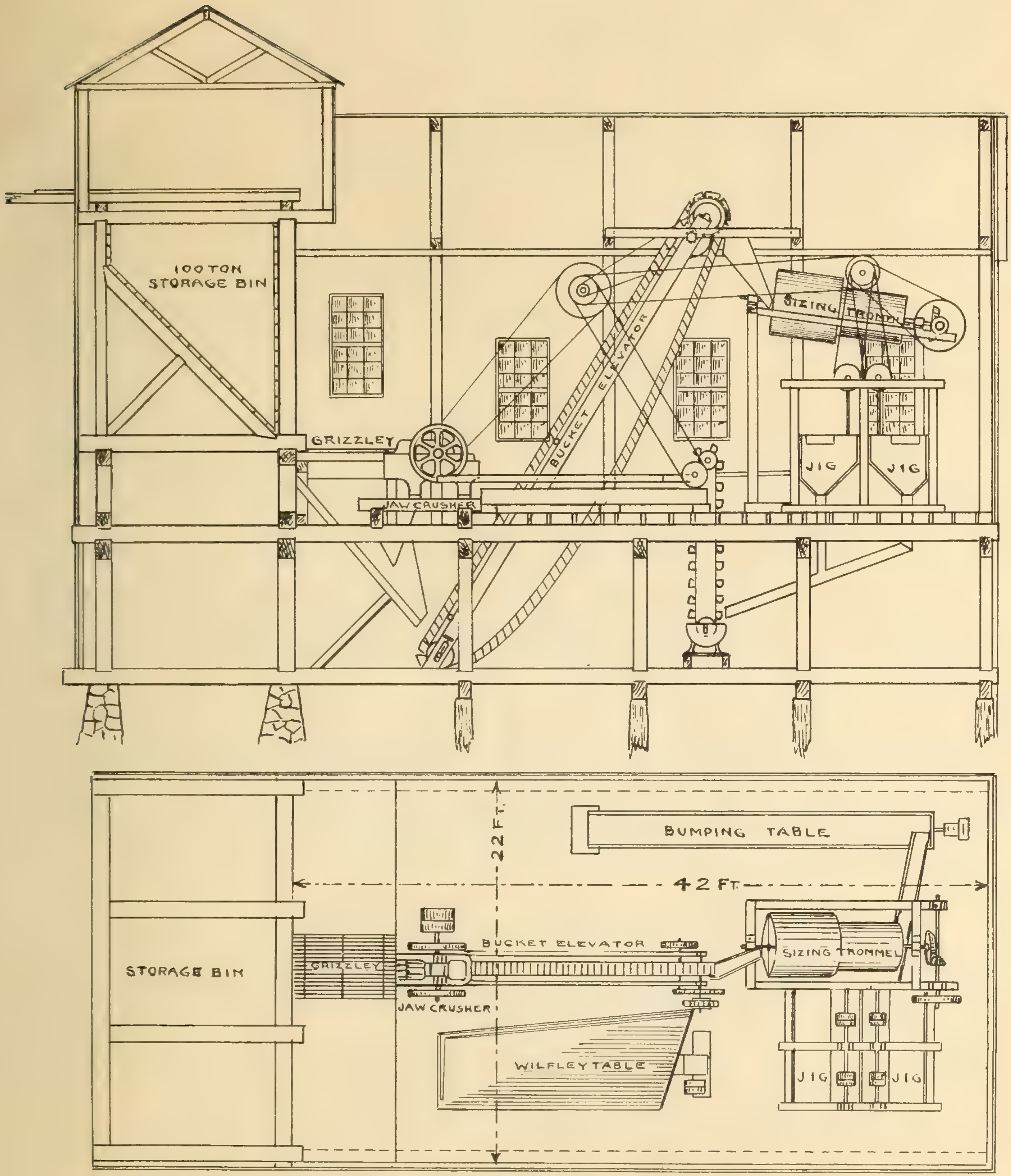
Our work upon the Savage has demonstrated the fact that only in rare instances do the silver values show upon the surface, and for this reason it is intended to prove up known veins by crosscutting rather than by sinking separate shafts upon each of them.

About six thousand feet of trenches have been dug this year, and altogether about two miles of this work has been done. The result has been the exposure of four veins (one of which carries nuggets at the surface) lying between and extending parallel to veins 2 and 3. Also to the east of No. 3 Shaft a net work of cobalt bearing veins has been exposed.

These veins can be reached from the workings on No. 3 vein by means of crosscuts, and all ore and waste rock will be raised through No. 4 Shaft.

This shaft is located at about the center of the property, on high ground with excellent opportunities for disposing of waste rock and ore, the new sorting plant being fifty feet from the shaft.

A new head gear, hoist house and shop have been erected, and when a supply of power becomes available, it will be possible to develop and mine the property economically from No. 4 Shaft.



NEW SORTING PLANT SAVAGE MINE

The No. 1 workings were abandoned and allowed to flood in January 1909, as explained in my last annual report. No. 2 Shaft has been pumped out and timbered to a depth of 100 feet, the shaft bottom being 112 feet. A concrete water ring has been installed and a pumping station established at 70 feet, for the purpose of catching up and getting rid of as much water as possible, thereby improving the working conditions in the shaft.

During the summer the Provincial Mine, by means of a diamond drill, proved the continuance of this vein to a depth of 165 feet, and it is my purpose to sink to 200 feet if the ore holds good that far.

Allowing a distance of twenty feet on either side of the shaft and a vertical depth of 75 feet, I estimate that No. 2 Shaft has developed a reserve which will yield approximately 60,000 ounces, but owing to a lack of knowledge concerning this vein it is not possible to form any accurate conclusions; it is probable that the ore developed will considerably exceed the above estimate.

Pending the completion of the new sorting plant, and the delivery of power, the sinking of No. 2 Shaft has been deferred, and work at present is limited to keeping the shaft pumped out. Meanwhile a trestle has been constructed to connect No. 2 with the new sorting plant at No. 4.

The most important ore body at present known upon the claim, is No. 3 Vein.

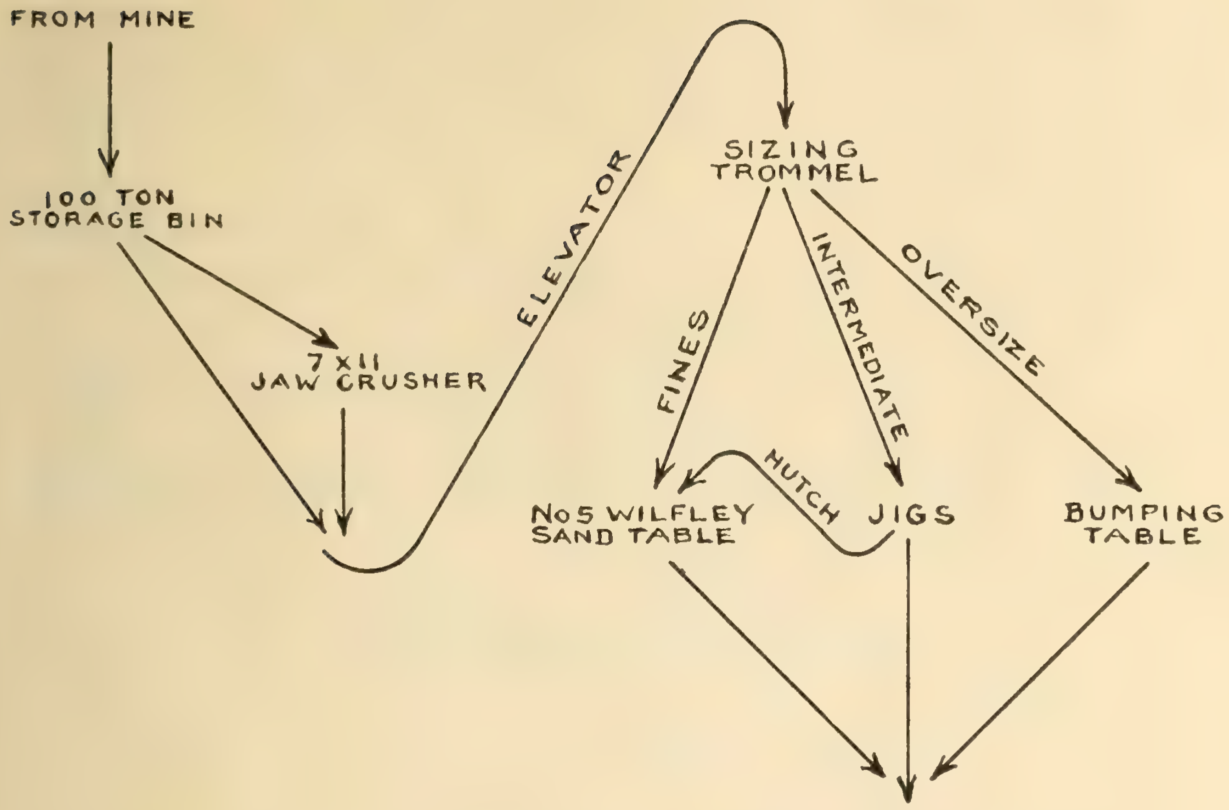
Sinking No. 3 Shaft, ore was encountered at 20 feet, and for about nine feet the vein was one and one-half inches wide, and carried from 8,000 to 10,000 ozs. per ton. From 30 to 75 feet the vein averaged about 2½ inches in width and carried from 1,700 to 2,500 ozs. per ton.

Drifting on the 75 ft. level showed ore ten feet to the east of the shaft, at which point the vein ran into an open fissure. No attempt has been made underground to locate the extension of the vein beyond this fissure, but upon the surface it has been located. To the west of No. 3 Shaft the 75 ft. level drift has been connected through to No. 4 Shaft, a distance of 265 feet, and the drift has been carried 20 feet beyond No. 4.

Between No. 3 and No. 4 the vein averages 2 inches in width, and carries approximately 1800 ozs. per ton.

Below the 75 ft. level, No. 3 Shaft was sunk to a depth of 130 feet from surface, and a crosscut of 18 feet was driven to pick up the vein. On this level the vein is small (about ¾ of an inch wide) and patchy, though rich in nuggets. There is some silver in the wall rock. A total of 98 feet of drifting was done at this level.

On the night of August 6th, the No. 3 Shaft house caught fire, being completely destroyed, and the burning debris falling down the shaft, caused the shaft timbers to burn out above the 75 ft. level. After this accident, work on the 130 ft. level was suspended, as it was decided not to rebuild the burned structure, but to push the sinking of No. 4 Shaft, making the latter the main hoisting shaft for the workings.



FLOW SHEET-SAVAGE SORTING PLANT

No. 4 has been carried down to a depth of 125 feet, at which level a strata of water-bearing sandstone was cut, and sinking operations were discontinued for the time being, until sufficient power is available to meet the increased demands for power for pumping.

Stoping. Sixty cubic yards, stoped from the roof of the 75 foot level drift, represents the only inroad made upon ore reserves during the year.

Ore Reserves. The values of the ore reserve in No. 3 Vein can not be accurately estimated, owing to the great variations in the values per ton at different points. From sampling in the shafts and drifts, checked by smelter returns on ore shipped, I believe that I am conservative in placing a value of approximately 600,000 ounces on the known extent of No. 3 Vein as developed by shafts 3 and 4, and the drifts at 75 and 130 feet. This estimate does not allow for any persistence of values beyond our present workings.

Since the first of the year we have driven a crosscut north from the 75 ft. level of No. 3 vein to prove No. 4 vein. At a distance of 44 feet No. 4 vein has been cut. It is 2½ inches wide, calcite and smaltite, carrying 1000 ounces in silver values.

Allowing 80 feet of backs and a lateral extent of 60 feet will give a reserve of something over 90,000 ounces for this vein. Continuing the above crosscut to the north, at a distance of 26 feet beyond No. 4 Vein, we have also cut No. 5 Vein. It is 1¼ inches wide, smaltite, and is very rich in silver. No allowance has been made for this in estimating reserves.

RECAPITULATION OF ESTIMATED RESERVES.

No. 2 Vein,	60,000 ozs.
No. 3 Vein,	600,000 "
No. 4 Vein,	90,000 "
	750,000 ozs.

This is not to be considered as the full measure of the possibilities of the Savage, it represents only the value of that ore which has been fairly well developed.

No. 2 Vein is known to continue to a depth 50 per cent. deeper than that included in the estimates of ore reserves.

No. 3 Vein has been traced upon the surface for almost twice the length developed underground.

No. 4 Vein has been traced upon the surface for a considerable distance, but has only been prospected at one point underground.

Several other veins, fully as promising in surface showings as were either No. 2 or No. 3, have also been disclosed in trenching.

With these facts in view, one is justified in placing the possible yield of the Savage at a figure greatly in excess of the 750,000 ounces estimated above, and while not venturing any definite figures, I feel that the Savage is destined to become a factor of far greater importance than it is at present.

Before closing this report, I wish to thank the directors for their continued support, and to express my appreciation of the loyal services rendered by the Cobalt staff, whose efforts have produced the good results achieved during the past year.

Yours truly,

P. A. ROBBINS,

General Manager.

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